Employee Motives for Engaging in Environmentally Sustainable Behaviors: A Multi-Study Analysis

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Rachael M. Klein

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Abstract

This research examines motives for environmentally sustainable (or "green") employee behavior. Although individuals' motives for pro-environmental behavior were previously explored in non-workplace domains, systematic attempts to identify the barriers and motives of employee green behavior are lacking. Thus, the aim of this research is to understand and assess why employees engage in green behavior, build a nomological network around these motive constructs, and explore the implications for how employee green behavior can be best supported given different motivations. These overarching research questions were addressed through a series of studies. First, in Study 1, a taxonomy of motives of and barriers to employee green behaviors was developed through an analysis of critical incident interviews with U.S. employees and then replicated in the U.S. and cross-culturally with a European sample. Sixteen motives and barriers were identified. In Study 2, sex differences in pro-environmental behaviors and its determinants were examined. The meta-analysis included environmental motivation (social responsibility, self-efficacy, expectancy, social norms, lack of knowledge), motivationally-relevant variables (environmental values, concern, commitment, behavioral intentions), environmental attitudes, and informational variables (environmental awareness, environmental knowledge) as well as pro-environmental behaviors (general, avoiding harm, conserving, influencing others, responsible product choices, and taking initiative). Generalizable sex differences were observed, with women more likely to report higher levels of specific environmental concern, greater motivation stemming from social norms, self-efficacy, and social responsibility, and more behaviors

aimed at avoiding environmental harm. Men were more likely to have higher levels of environmental knowledge, however this effect seems to be diminishing over time. In the third study, the taxonomy of motives and barriers was used to develop an Environmental Sustainability Motives Scale to assess motives for green behavior performance and omission, as well as ungreen commission and avoidance. Exploratory factor analyses revealed four similarly interpretable factors across these behavioral quadrants: Prosocial, Enabling Capabilities, Extrinsic, and Image motive factors. Examinations of the nomological network of these factors showed differing relationships with how factors related to the Big Five personality factors and facets, sex, and green behavior across behavioral quadrants. The findings in this dissertation highlight the benefits of identifying and being able to measure the motivational determinants and barriers of employee green behavior in promoting environmental sustainability in organizations.

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Introduction

Environmental sustainability is an important and timely topic, as recent research has made it clear that world-wide interventions and changes in economic life will be needed to avoid environmental calamities that threaten the health and well-being of humanity (e.g., climate change, chronic malnourishment, degradation of land, water, and biodiversity; Foley et al., 2011; United Nations Intergovernmental Panel on Climate Change, 2014). The depletion of natural resources that businesses rely on in production and delivery of services is also of great concern (Fischer-Kowalski et al., 2011; Kerr, 2011, U.S. Energy Information Administration, 2011). Organizational behavior is accordingly adapting and changing as organizations move to alter their inputs, processes, and outputs toward those that support or achieve environmental sustainability. For instance, new green positions have been added to organizations and green duties have been added to jobs in order to support and drive this change (United Nations Environment Programme, 2008). The Society of Human Resource Management's (2010) survey of 1,705 HR professionals found that 23% of their organizations had created new green positions or added green duties to newly created jobs and 81% of organizations had added green duties to existing positions over the past year. The National Center for O*NET Development has responded to this change in the world of work by examining how the green economy will affect occupations, identifying green increased demand occupations, green enhanced skills occupations, and green new and green new and emerging occupations (Dierdorff et al., 2009).

Given the demand for employees who are aware of sustainability issues and can make eco-friendly decisions in the workplace, researchers and practitioners must be prepared to guide organizations seeking to adapt to these new workplace trends. The APA Taskforce on the Interface between Psychology and Global Climate Change has specifically called for addressing changes that are necessary "at the systematic and human behavioral levels as businesses and nonprofit organizations adapt to a changing environment" (Swim et al., 2010, p. 16). By helping organizations incorporate sustainability into the workplace through selection, job analysis, training, and increasing motivation of employees, industrial/organizational psychology has the potential to make meaningful contributions to environmental sustainability within the workplace (Muros, 2012; Ones & Dilchert, 2012b).

One major goal of my research is to understand and measure what motivates employees to engage in green behaviors so that interventions can be tailored to employees and organizations accordingly. Researchers have noted the importance of understanding the functions a behavior serves and even caution that attempts to change behaviors will only be successful when these functions are understood and addressed (Carver & Scheier, 2000; Clary, Snyder, Ridge, Miene, & Haugen, 1994). Specifically within the field of environmental psychology, there has been a call for the examination of the motivational determinants of and potential barriers to environmental behavior (Abrahamse, Steg, Vlek, & Rothengatter, 2005). Organizations must understand how to increase employee engagement in environmental sustainability, since reducing the

environmental impact of organizations will depend on individual employees contributing to sustainability efforts.

Not only is it important to understand why employees engage in green behaviors, but also why they engage in ungreen behaviors and what barriers inhibit sustainable behavior. For example, construction employees under time pressure may choose to cut pieces from new materials rather than reusing old materials (Federle, 1993). Computers have made paperless work environments feasible and more prevalent, yet there are many individuals who still want paper copies of documents. A thorough examination of the motives of ungreen behaviors and barriers to green behaviors in the workplace is needed at the individual employee level. This research will identify and assess the factors that motivate the performance of employee green behaviors, as well as contribute to building a nomological network around these motives in order to advance both theory and practice about motivation for green behavior at work. Before moving into each specific study, the constructs of green behavior and motivation will be discussed.

Literature Review

Employee Green Behavior

Definitions and Components. Pro-environmental behavior has been defined as "individual behaviors contributing to environmental sustainability (e.g., limiting energy consumption, avoiding waste, recycling, and environmental activism)" (Mesmer-Magnus, Viswesvaran, & Wiernik, 2012). Researchers have distinguished between pro-environmental behavior which are intentional and freely chosen (i.e., not under organizational control), and employee green behaviors which occur under the purview of

organizations (Ones & Dilchert, 2012a). More specifically, employee green behaviors have been defined as "scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability" (Ones & Dilchert, 2012a). This definition focuses on actions *employees* take with respect to environmental sustainability, which can be measured in terms of the proficiency and frequency with which they are performed by each employee. Although individual pro-environmental behaviors have received a fair amount of attention in other fields of psychology, in particular, environmental psychology (Steg & Vlek, 2009) and social psychology (Cialdini, Reno, & Kallgren, 1990), employee green behaviors have only recently begun to be studied by industrial/organizational psychologists (Scherbaum, Popovich, & Finlinson, 2008; Ones & Dilchert, 2012b).

Early work on employee green behaviors has resulted in a taxonomy of employee green behaviors which has been empirically developed (Ones & Dilchert, 2009), empirically validated (Ones et al., 2010), and cross-culturally replicated (Hill et al., 2011). The Green Five Taxonomy of Employee Green Behaviors, or Green Five, includes five dimensions of green behavior: 1) Conserving, 2) Avoiding Harm, 3) Working Sustainably, 4) Influencing Others, and 5) Taking Initiative (Ones, 2011; Ones & Dilchert, 2009; 2010; Hill et al., 2011). The Conserving dimension of behavior is comprised of what is traditionally thought of as the 3Rs: reducing use, reusing, and recycling, as well as a fourth subfacet of repurposing. Another dimension of behavior is Avoiding Harm, which encompasses subfacets of preventing pollution, monitoring environmental impact, and strengthening ecosystems. Working Sustainably includes

subfacets of changing how work is done, creating sustainable products and processes, embracing innovations for sustainability, and responsible product choices. The dimension of Influencing Others encompasses encouraging and supporting others and educating and training oneself and others for sustainability. The fifth facet is Taking Initiative which included the subfacets of lobbying and activism, putting environmental interests first, and initiating or implementing programs and policies related to sustainability. Previous research has demonstrated that even though the content of the Green Five are distinct and reliably recognized by subject matter experts. Furthermore, each of the Green Five can and have been measured with high reliability when enough items can be used to tap each Green Five domain. Higher order factor analyses of the Green Five reveal two major, higher order underlying factors: a proactive factor and a reactive factor. The proactive factor includes facets related to actively enhancing the environment or preventing harm and is comprised facets from the Taking Initiative, Influencing Others, and Working Sustainably dimensions. This includes activities related to monitoring and strengthening ecosystems, such as educating and supporting others, changing how work is done, and creating more sustainable products and processes. In contrast, the reactive factor includes behaviors where individuals react to a problem rather than trying to prevent it. These behaviors are drawn primarily from the Green Five dimensions of Conserving and Avoiding Harm, and include recycling, repurposing, choosing responsible products, and polluting.

Employee green behavior can also be understood by considering links to traditional models of job performance. Recent research has converged upon three major domains of

job performance at work (Rotundo & Sackett, 2002; Sackett, 2002; Viswesvaran & Ones, 2000). These include task performance, organizational citizenship behaviors (OCBs), and counterproductive work behaviors (CWB). Task performance refers to behaviors that contribute to the technical core of the organization and are part of employees' formal job duties (Rotundo & Sackett, 2002). OCBs are discretionary behaviors in which an employee engages in behaviors that go beyond their core work duties to benefit the organization (Organ, 1997). OCBs are categorized into prosocial behaviors that help the organization or other individuals, labeled organizational and interpersonal OCBs, respectively (cf. Berry, Ones, & Sackett, 2007). CWBs are voluntary employee behaviors that threaten the legitimate interests of an organization (Sackett & DeVore, 2001). Empirical research has shown that OCBs and CWBs are not simply opposites on the same continuum, but rather related, but distinct constructs (Dalal, 2005; Sackett, 2002)

Similar to job performance, employee green behaviors can be thought of as task performance, OCB, or CWB, depending on a number of contextual factors (Ones & Dilchert, 2012a). If required as a part of one's job duties, green behavior falls under the domain of task performance. With the recent growth in the green economy, an increasing number of employees have jobs focused on green tasks, such as those related to environmental protection or green construction. However, employees do not necessarily have to work in a green job to have green tasks. Employees in traditional jobs can also have roles related to green behavior (e.g., office managers responsible for converting to electronic records to save paper). Ones and Dilchert (2010) found that over 29% of all employee green behaviors performed within the U.S. were actually required by

organizations, while in Europe 13% of behaviors were required (Hill et al., 2011).

Employee engagement in sustainability can also be voluntary, particularly when there is a lack of formal rewards and management systems for green behavior (Boiral, 2009; Daily, Bishop, & Govindarajulu, 2009). When an employee decides to go beyond their job duties to perform green behaviors, then these behaviors would be classified as OCBs. This might include employees voluntarily taking certain types of recyclable materials to an off-site recycling center or voluntarily helping an employee learn about a green product. Employee green behaviors have largely been ignored in taxonomies of OCBs, although recent applications of Organ, Podsakoff, and MacKenzie's (2006) taxonomy to employee green behaviors have shown that these frameworks can encompass green behavior (Boiral, 2009). Lastly, an employee can engage in CWB by failing to perform green behavior that is required or by performing ungreen behaviors that cause harm to the environment (Ones & Dilchert, 2012a), such as improperly disposing of hazardous waste.

Determinants of Employee Green Behavior. A common argument is that motivated employees bring ideas and effort needed to improve environmental sustainability of their organization (Starik & Rands, 1995). The direct determinants of employee green behavior include possession of the knowledge, skills, and abilities (KSAs) to engage in green behaviors, and motivation to engage in these behaviors within the workplace. KSAs related to green behavior are developed through education, training programs, or other direct or indirect experiences. These KSAs include declarative knowledge (knowing what to do) and procedural knowledge (knowing how to do the

green task). Given the number of green behaviors that entail minimal KSA requirements (i.e., recycling, choosing green transit options, reducing energy usage), motivation to engage in green behaviors is often the primary determinant of whether or not an individual will engage in green workplace behavior.

Research demonstrates that pro-environmental behavior can be influenced by interventions, although the size of the effect can vary based on the type of intervention. Meta-analytic evidence from the pro-environmental behavior (non-work) domain suggests that declarative and procedural knowledge variables tend to be more weakly correlated with pro-environmental behavior than psychosocial or motivational variables, although differences are slight (cf. Bamberg & Möser, 2007; Hines, Hungerford, & Tomera, 1986-87). There are more marked differences in terms of the effectiveness of interventions targeting the determinants of green behavior. Interventions aimed at psycho-social and motivational variables tend to be more effective at increasing pro-environmental behavior than interventions with aims of increasing knowledge (particularly when objective measures are used; cf. Ones & Dilchert, 2013). For instance, Osbaldiston and Schott's (2012) meta-analysis of ten different types of interventions aimed at increasing pro-environmental behavior found that the three most effective types of interventions were those utilizing cognitive dissonance, goal setting, and social modeling (weighted mean effect sizes, Hedge's *gs*, of.94, .64, and .63, respectively) than providing instructions or procedural information about the behavior (Hedge's g = .31). A meta-analysis of workplace interventions for employee green behavior found a similar pattern of results (Semmel, Klein, Ones, Dilchert, & Wiernik, 2012). This evidence

suggests that motivational issues may be more likely to inhibit green behavior than a lack of knowledge about what green behavior needs to be done or how to do it. As such, this research will primarily focus on the role of motivation in green behavior. It examines the reasons why individuals decide to engage in green or ungreen behaviors. More specifically, the focus is not on if individuals can do the green behavior, but rather *will* they do it, as well as what factors might prevent them from engaging in green behaviors.

Motivation for Green Behavior

Motivation has been described as an unobservable force that directs, energizes, or sustains behavior over time and across circumstances (Donovan, 2001; Kanfer, Chen, & Pritchard, 2008). It is considered the combined effect of three choice behaviors: the choice to expend effort (direction of effort), the choice of the level of effort to expend (intensity), and the choice to persist in the expenditure of that effort for a given level of time (duration or persistence; Campbell & Pritchard, 1976; Campbell, McCloy, Oppler, & Sager, 1993).

There are different motivational theories that are relevant to building a theory of environmental sustainability motivation. The two most prominent theories are (1) cognitive choice theories and (2) need-motive-values theories. The former include motivational aspects of Theory of Planned Behavior (Ajzen, 1991). The premise of Ajzen's rational choice model is that perceived behavioral control (an estimate of one's ability to perform the behavior) and attitudes mediate the relationship between social norms and behavior indirectly through behavioral intentions. This theory has received support in relation to pro-environmental behavior, with perceived behavioral control,

social norms, and attitudes having been shown to correlate between .30 and .42 with pro-environmental behavior, whereas environmental behavioral intentions correlate .52 with actual pro-environmental behavior on average (N = 5,642, k = 15; Bamberg & Möser, 2007). In contrast, need-motive-values theories focus on individual differences in motives, values, and personality and are largely overlooked in the environmental psychology literature. That is, between-person differences in motivation result from differences in motives, values, and personality (Kanfer, 1991). The theoretical orientation of this dissertation is aligned with the latter group of theories. Specifically, it is posited that individual differences in motives are important for direction, intensity, and persistence of pro-environmental behavior in work contexts. Differing goals motivating employee green behaviors may be understood in terms of functional motives (Clary et al., 1998), based on the idea that behavior can be motivated by and serve different psychological functions.

Similar to motivation more broadly defined, motivation for green behavior will be thought of as the psychological processes that help determine how one directs his/her efforts, the amount of effort invested, and how long one persists. These psychological processes can originate both from within, as well as beyond the individual. This distinction is particularly relevant in work contexts where organizational factors may influence individuals' green or ungreen behavior (Pinder, 1998), and represents a large factor that makes the study of workplace green behavior distinct from pro-environmental behavior performed in home environments.

Researchers have examined what motivates people to engage in specific behaviors

by either theoretically or empirically analyzing the motives that underlie specific types of behavior or goal content to determine categories or domains of meaningful motivational determinants of behavior. The taxonomic structure of work motives has long been debated (Kanfer, 1990). Campbell and Pritchard (1976) argued for a distinction between lower-order motives that are activated concerns about features of the work environment, such as safety and pay, and higher-order motives affecting an individual's higher-order needs, such as need for achievement. Motives for a wide range of specific behaviors such as organizational citizenship behaviors (Rioux & Penner, 2001), volunteering (Bramston, Pretty, & Zammit, 2011; Clary et al., 1998; Ryan, Kaplan & Grese, 2001), food choice (Steptoe, Pollard, & Wardle, 1995), work-related behaviors of employees (Kooij, de Lange, Jansen, Kanfer, & Dikkers, 2011), and job-search motives (Wanberg, Kanfer, & Rotundo, 1999) have been studied, in some cases leading to the development of motive taxonomies and scales used in research. Similarly, the domains that motivate employees have been examined by analyzing the content of specific goals set by managers (Bateman et al., 2002) and employees in general (DeShon & Gillespie, 2005; Klein, Austin, & Cooper, 2008). Both of these categorizations are arranged hierarchically such that goals or motives at the top of the hierarchy specify the higher purpose, or why an action is performed, while lower levels represent how the goals are achieved. The present studies will examine motivation from the perspective of why individuals engage in pro-environmental behavior, similar to the *functional approach* taken by Clary, Snyder and colleagues (Clary et al., 1998).

Much of the research on individual motives for green behavior has focused on motives for environmental stewardship, or volunteering to help the environment. Motives for being newly involved in or intending to participate in volunteer work included developing a sense of belonging, caretaking for the environment, and expanding personal learning (Bramston, Pretty, & Zammit, 2011). Ryan, Kaplan, and Grese (2001) found five factors which motivated individuals to keep volunteering, including helping the environment, learning, project organization (i.e., leadership, organization, and communication), social benefits, and reflection (i.e., personal or emotional benefits such as having a chance to do something physical or work at one's own pace).

One of the more comprehensive studies of individual's motives for engaging in pro-environmental behaviors in non-workplace settings was conducted by De Young and Kaplan (1986). They interviewed 30 individuals affiliated with conservation organizations, and through a content analysis of responses identified 18 justifications for individuals' engagement in green behaviors. After reviewing the categories they excluded seven from further analysis because of low endorsement, resulting in a total of 11. The three most frequent justifications was satisfaction derived from conserving, money savings, and comfort/convenience. A secondary cluster of justifications included satisfaction derived from a modern lifestyle (personal independence, self-image, quality of experiences, and quality of material items), social concern (satisfaction derived from helping others, involvement in promoting social change, and involvement in the community), and satisfaction derived from challenging activities.

De Young and Kaplan's (1986) categories were developed in home environments and do not necessarily apply to the workplace. There are a number of key differences between household and work settings that may affect the reasons why employees might engage in green behaviors. By definition, green behaviors are under organizational scrutiny and might be required as a part of job duties (Ones & Dilchert, 2012a; 2013). Even when employee green behaviors are not required, employee green behaviors may be encouraged, rewarded, or discouraged by the organization's values and culture, practices (i.e., sponsoring an environmental volunteering opportunity), supervisory support (Ramus & Steger, 2000), and other factors. Although De Young and Kaplan's categories are a good starting point for identifying motives of household behaviors, even in the context of household settings, there are still a number of issues that limit their taxonomic usefulness. These limitations include a small and unrepresentative sample consisting solely of 30 individuals affiliated with conservation organizations and the authors' decision to exclude seven justification categories with low endorsement. There are also some notable omissions from their taxonomy, including motives due to perceived health risks associated with harmful environmental actions (Baldassare & Katz, 1992; Seguin, Pelletier, & Hunsley, 1998). Overall then, although environmental motives of individuals have been explored with regard to people's household efforts, there has been little research on employee green motives within the workplace. Thus, the lack of a comprehensive investigation of environmental motives of green behavior at work indicates a major gap in the literature.

Barriers to environmentally sustainable behavior have received much less attention in the literature compared to motives. Blake (1999) noted that most pro-environmental behavior models fail to account for individual, social, and institutional constraints. Based on interviews with 163 individuals, he identified three barriers to pro-environmental behavior: individuality (i.e., laziness, lack of interest), responsibility (i.e., lack of efficacy, lack of trust), and practicality (i.e., time, money, information, encouragement). Kollmus and Agyeman (2002) proposed a model based on their review of the literature, classifying factors that have either a positive or negative influence on pro-environmental behavior including internal factors such as lacking environmental knowledge, external factors (i.e., economic, cultural, or institutional), and demographic factors. In order to understand barriers related to engagement with climate change, Lorenzoni, Nicholson-Cole, and Whitmarsh (2007) synthesized information from semi-structured interviews, focus group discussions, surveys, and Q methodology[1]. They identified individual barriers, including a lack of knowledge, uncertainty and skepticism, distrust in information sources, externalization of responsibility and blame, reliance on technology, perception of climate change as a distant threat, importance of other priorities, reluctance to change lifestyles, fatalism, and helplessness. Social barriers included a lack of action by government, business and industry, worry about free riders, social norms and expectations, and a lack of enabling initiatives (i.e., cost, inconvenience). Most recently, Gifford (2011) identified seven categories of psychological barriers to climate change mitigation and adaption. These included limited

[1] For more information on Q methodology, see McKeown and Thomas (1988).

cognition (i.e., optimism bias, self-efficacy), ideologies, comparisons with others, sunk costs, discredance (i.e., mistrust, denial), perceived risks (i.e., financial), and limited behavior (i.e., rebound effects). While there has been some examination of proposed barriers to pro-environmental behavior in non-work life, particularly climate change mitigation and adaption, there has been no examination of why employees engage in ungreen behavior and why they refrain from green behaviors in their work environments.

Although motives of employees have not been examined, the reasons why organizations engage and refrain from engaging in sustainable efforts have received more attention. This is similar to much of the research on environmental sustainability at work which has focused on the organizational level (cf. Ones & Dilchert, 2012b). Bansal and Roth (2000) assessed why firms are motivated to be environmentally responsible through interviews with 88 environmental managers and directors of companies. The interviews focused on what environmental initiatives their companies had adopted and why. Based on the responses, three motive categories were identified: ecological responsibility, competitiveness (i.e., to improve long-term profits), and legitimization (i.e., to comply with a set of regulations, norms, values, or beliefs). Similarly, Oskamp et al. (1994) concluded from a brief review of the literature that organizations are driven to recycle because of environmental concern, financial savings, and desire for a "green" image.

In terms of barriers to sustainable behaviors, a Society of Human Resource Management poll (2011) of 369 organizations that were *not* engaged in sustainable workplace or business practices revealed that the top five obstacles to organizations were the costs of launching, the difficulty of measuring return on investment, lack of support

from organization's leaders, costs of maintaining, and lack of internal capacity of knowledge. Less frequently reported motives included: sustainability practices detract from primary business goals, sustainability practices are not mainstream enough to offer a business advantage, lack of interest among employees, lack of shareholder support, lack of interest among customers, and lack of technological support. Although these examinations were at the organizational level, they provide some indication that the reasons employees engage in green or ungreen behavior may be similar, but not identical, to, motives and barriers for household pro-environmental behavior. For instance, complying with regulations or any type of requirement was not mentioned by participants in De Young and Kaplan's (1986) household study.

Motives for engaging in environmentally responsible and irresponsible behaviors performed at work should also differ from motives for household behaviors given that employee behavior is often guided or constrained by overarching company goals or specific job duties. A survey of 1,788 Taiwanese office workers from 32 organizations found that individuals self-reported different frequencies of recycling in their home and work environments. While almost two-thirds of respondents classified themselves as "frequent" recyclers and another quarter as "occasional" recyclers in their households (64% and 26.9%, respectively), only one in six of the same respondents classified themselves as frequent recyclers (16.3%) and two of three as occasional recyclers (66.2%) within the workplace (Lee, De Young, & Marans, 1992). Given that the rate of recycling is different in household versus work settings, the frequency with which

individuals cite different motives for and barriers to green behavior within the workplace should be different than household settings.

Another focus of the current research is how individual differences are linked to the people's motives for green behavior. Individual differences in motivation can arise given a large number of antecedents on which individuals also differ, including interests, abilities, personality traits, and "treatments" such as experience or training (Campbell & Pritchard, 1976; Campbell et al., 1993). When selecting the direction an individual's behavior will take, activation of the underlying motive may be constrained by one's values, personality, and sex (Austin & Vancouver, 1996). This research will examine two important individual differences that relate to motivation for green behaviors: personality and sex. Theories relevant to these constructs will be discussed in the literature review for the relevant section(s).

Overview of Studies

The proposed research will examine motives of environmentally sustainable (or "green") employee behavior. The aim of this research is to understand and assess why employees engage in green behavior, build a nomological network around the construct, and explore the implications for how employee green behavior can be best supported given different motivations for green behavior. These overarching research questions will be addressed through a series of studies (see Figure 1 for a concise overview). First, I will describe a taxonomy of motives of and barriers to sustainable behaviors that was developed through an analysis of critical incident interviews with employees, initially conducted in the United States and then cross-culturally replicated in Europe. I will then

meta-analyze the vast amount of published and unpublished data on pro-environmental behaviors in order to examine sex differences in pro-environmental behavior and its determinants, focusing on motivation and motivationally-relevant variables, to understand how men and women may engage with green behavior in the workplace. In a third study, I will develop and utilize a scale created from the taxonomy in Study 1 to measure and assess motives and barriers to green behavior. This study will result in understanding the structure of these motives and build a nomological network around green motives that will include the constructs of sex, personality, and green behavior.

Study 1:

Creation of a Taxonomy of Pro-Environmental Motives and its Cross-Cultural Replication

The primary aim of Study 1 is to determine categories of motives for and barriers to green behavior, and establish the applicability of these categories across samples, including cross-cultural replication of the motive taxonomy.

Literature Review

To achieve organizational sustainability objectives, organizations must understand how to motivate employees to engage in green behaviors, since reducing the environmental impact of organizations will depend on individual employees contributing to sustainability efforts in their work environments. The director of the Navy's Energy and Environmental Readiness division, Rear Admiral Philip Hart Cullom, notes that the biggest challenge in meeting the Navy's bold energy goals is that they "need the sailor on the deck and the Marine on the field to understand why this is important" (Walsh, 2011). Green technologies and initiatives within the workplace can only reach their full potential when employees choose to incorporate them into their work routines. For example, new technologies have helped construction companies manage construction waste through recovery, reuse, and recycling, but these technologies still depend on individual employees being motivated to adopt the behaviors (Lingard, Gilbert, & Graham, 2001). Not only is it important to understand why employees engage in green behaviors, but also why employees engage in ungreen behaviors and what barriers inhibit sustainable behavior. Situational factors, such as job demands, can affect employee motives and

behaviors. A thorough examination of the motives of ungreen behaviors and barriers to green behaviors is needed at the individual level.

Bansal and Roth (2000) identified individual concern as one factor that influences an organization's motives and ecological responses. Individual employees may champion environmental issues, help decision makers choose which issues are important to pay attention to, and, when employees with environmental values are in upper-level management positions, they are more likely to be receptive to issues that mirror their own personal values. In many instances, concern for the environment is a bottom-up process where concern originates at the individual level and then becomes integrated into the company's actions and values. Even in cases in which the spread of environmental concern is top-down (i.e., the founder establishes a green organization, management adopts a green mission or strategy, or the organization is required to improve their environmental performance by regulators) organizations will still need individuals to make environmentally responsible decisions on a daily basis. It is crucial that industrial/organizational psychologists examine the motives of individual employees and barriers to green behavior in order to understand how to effectively bring about lasting reduction of the negative environmental impact of organizations.

The present study of motives is guided by a functional approach that is based on the idea that behavior can be motivated by and serve different psychological functions. The functional approach was originally used to theorize about different attitude functions, but has also been used to examine motivation in order to identify and understand why individuals decide to engage in a variety of behaviors (Clary et al., 1998; Clary, Snyder,

Ridge, Miene, & Haugen, 1994; Katz, 1960; Smith, Bruner, & White, 1956). Social psychologists have noted the importance of understanding the functions a behavior serves and even caution that attempts to change behaviors will only be successful when these functions are understood and addressed (Carver & Scheier, 2000). Also, specifically within the field of environmental psychology, there has been a call for an examination of the motivational determinants of and potential barriers to environmental behavior (Abrahamse, Steg, Vlek, & Rothengatter, 2005). Thus, this study seeks to create a functional taxonomy of green motives in order to better understand and assess employees' motives to be environmentally responsible. Such a taxonomy will aid researchers and practitioners in planning effective green interventions based on the unique motive profiles of organizations and their employees.

The existing literature on environmental motives supports taking a functional approach, as previous studies of individuals' environmentally responsible behaviors in their home environments suggest that people's engagement in pro-environmental behaviors serves multiple functions (De Young, 2000; De Young & Kaplan, 1986; Pelletier, Tuson, Green-Demers; Noels, & Beaton, 1998). However, most environmental studies only examine a limited number of functions of environmental behaviors, whereas the theoretical framework and theory validation have yet to be done to the degree in which it has been applied in other areas. For instance, previous research on volunteering has lead to the convergence of a six-motive conceptualization of the functions that can be served by volunteering (Clary et al., 1998). Rioux and Penner (2001) also employed a functional approach to identify the primary motives of organizational citizenship

behavior, identifying prosocial values, organizational commitment, and impression management. These studies were both undertaken to identify the personal and social purposes served by an individual's behavior (Snyder, 1993). The present study attempts to construct a similar theoretical framework through a review of the literature and a series of qualitative interview studies to capture employee motives for green behaviors.

This study aims to establish an empirically-derived taxonomy of functional motives in order to understand the various motives which drive environmentally responsible *and* irresponsible behaviors within the workplace. I expect specific motives for green behaviors and ungreen behaviors to be different given that green behaviors typically require individuals to proactively perform them, whereas ungreen behaviors may result because of barriers to green behaviors, or a choice to engage in eco-unfriendly behaviors. Thus, by not only examining why employees engage in green behaviors, but also identifying why employees fail to engage in green behaviors and why employees engage in *ungreen* behaviors, I aim to construct a comprehensive taxonomy of employee motivations.

A Theoretical Lens for Understanding Green Motives

Previous work on environmentally responsible behaviors has identified multiple functions served by environmentally responsible behaviors within household environments; however, no study has taken a comprehensive approach to empirically examining the functions of employee environmental behavior. Different motives of green household behaviors are scattered across studies, with few studies attempting to identify all possible motives or overarching categories. Based on previous theories and primary

studies in an attempt to provide structure to the functions of environmentally responsible and irresponsible behavior, I hypothesize the main functional categories for environmentally sustainable and unsustainable behaviors in work settings. These categories form the backbone of a working taxonomy of green motives at work.

A useful framework for organizing the hypothesized motive categories is Ryan and Deci's (2000) self-determination theory, which has previously been applied to examinations of environmental motives and goals (Osbaldiston & Sheldon, 2003; Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998). The self-determination continuum ranges from amotivation (least self-determined, or autonomous) to intrinsic motivation (most self-determined), with extrinsic motivation falling in between. Intrinsic motivation involves being motivated by the inherent satisfaction derived from an activity itself, and as such is the most autonomous form of motivation, as engagement in such activities does not feel controlled. Individuals are extrinsically motivated when they derive satisfaction from an activity where there is a reward, or outcome other than intrinsic enjoyment, associated with it. The extent to which external regulation is autonomous varies depending on how congruent, or integrated, these behaviors are with the person's other values and needs. Finally, amotivation is when individuals lack the intention to act because they do not value the outcomes of the behavior, they feel unable to perform the behaviors, or feel as though they lack control over the outcomes. Pelletier et al. (1998) found that, consistent with self-determination theory, the more self-determined, or autonomous, individuals were, the less likely they were to indicate dissatisfaction with the state of the environment, believe that environmental problems are

important, and engage in activities to help the environment. The hypothesized motives are listed below, organized according to how each maps onto Ryan and Deci's self-determination continuum in terms of whether the motive is primarily intrinsically motivated, extrinsically motivated, or amotivated (Figure 2).

Intrinsic environmental motives. Intrinsic motivation is when an individual engages in behaviors because of the inherent satisfaction they derive from the activity itself (Ryan & Deci, 2000). In a study of environmental intrinsic motivation, De Young (1996) identified different ways one could gain intrinsic satisfaction from engaging in environmental activities; for instance, one could derive pleasure from a frugal lifestyle, participation in purposeful activities, luxuries, altruism, and demonstration of competence. Werner and Makela (1998) found that respondents who valued recycling would make it more interesting by involving their children, engaging in the behavior as a learning experience, or by using some other tactic, and as such were more likely to continue recycling and report fewer reasons they could not recycle. I expect two intrinsic functions – *environmental benefits* and *altruism* – to motivate pro-environmental behavior in the workplace. I expect the structure and function of these motives to be similar to those within households because these values should transcend specific locations, such as the home or workplace.

Environmental benefit. Many individuals engage in sustainable behaviors because they intrinsically care about helping conserve natural resources and improving the quality of the environment. Whether labeled as eco-centric values, biospheric concerns, or a conservation ethic, the conceptualization of environmental concern serves

a similar function – people act with the environment in mind given their concern for its health and well-being (De Young & Kaplan, 1986; Schultz, 200; Simmons & Widmar, 1990; Vining & Ebreo, 1990; Vining, Linn, & Burdge, 1992). Biospheric concerns, as measured by Schultz, Shriver, Tabanico, and Khazian (2003), were related to the extent people associate themselves, or feel implicitly connected, with nature. Barr (2007) found that people with eco-centric values and strong environmental concerns were more likely to reduce their waste and reuse more frequently. Given the vast findings on intrinsic environmental concern as a motive of green behavior, I expect environmental benefits will emerge as a functional motive in the present study.

Altruism. Altruism, the motive to help others by acting on their behalf, is an important function served by environmental behaviors (De Young, 1996; Schultz, 2001). College students were more likely to engage in pro-environmental behaviors if they had developed an intrinsic orientation toward community involvement, self-development, and affiliation (Villacorta, Koestner, & Lekes, 2003). Altruistic motives have been measured by the endorsement of statements related to ideals, such as saving resources for future generations, and helping people in the community (i.e., charitable organization) (Schultz et al., 2003; Vining, Linn, & Burdge, 1992). I expect altruism to motivate employee behaviors within the workplace, given that people who value altruism will try to express this value within workplaces when possible.

Extrinsic motives. Individuals are extrinsically motivated when they derive satisfaction from an activity where there is a reward, or outcome other than intrinsic enjoyment, associated with it (Deci & Ryan, 2000). Extrinsic motives which I expect to

see within workplaces are *financial/cost considerations*, *health reasons*, *public relations*, and *job requirement*.

Financial/cost considerations. An extrinsic function served by performing green or ungreen behaviors is to save money. One of the three reasons *organizations* are motivated to engage in environmentally responsible behaviors is to be cost effective. While organizations are motivated to cut costs, they may also avoid green options when they are more expensive. Within household environments, the use of monetary incentives has been found to be effective in increasing environmentally responsible behaviors, although these behaviors often decrease to baseline levels once the incentive is removed (Katzev & Pardini, 1987-88; Lehman & Geller, 2004; for a review see Geller, Winett, & Everett, 1982 and Dwyer, Leeming, Cobern, Porter, & Jackson, 1993). A study of office workers, on the other hand, found that economic rewards only had a weak positive relationship with office recycling and source reduction, which lead the authors to conclude that economic incentives were not effective in increasing these behaviors (Lee, De Young, & Marans, 1995). This study, however, only considered economic rewards to employees, while neglecting the potential economic benefit to the organization. Employees may be motivated to save the company money, while understanding that they may not benefit directly from the cost savings. I expect employees to be motivated by financial and cost considerations given that employees often adopt, or are expected to meet, their organization's fiscal goals.

Requirement. Employees' behaviors at work are guided and shaped by specific job duties and requirements. Employees may be required to do tasks which harm the

environment, such as photocopying documents to distribute to others, or they may be required to perform sustainable behaviors, such as properly disposing of medical waste. This motive category reflects that performance of green or ungreen behaviors may be a component of employees' task performance and, as such, employees may be motivated to engage in pro-environmental behavior because it serves the function of fulfilling job requirements. Employees may also be required to comply with any of a vast number of governmental regulations and legal restrictions aimed at mitigating the adverse effects of environmental degradation (Berry & Rondinelli, 1998). I hypothesize that individuals will be required to engage in activities that may have either positive or negative environmental consequences, and that these job and/or legal requirements will be given as motives by employees.

Public relations. Another function served by green behaviors is presenting one's organization in a positive light. De Young and Kaplan (1986) found that people reported engaging in green behaviors because they believed it helped their image. In the same way, organizations are concerned about how they appear to the public, especially in terms of attracting customers, investors, and future employees. Research has found that organizations are concerned with their green image and how the organization is perceived to comply with regulations, norms, values, and beliefs of others (Bansal & Roth, 2000; Oskamp et al., 1994). Similarly, I expect employees to be concerned with their organization's "green" image and to cite a public relations benefit as a motive of their green behavior. This category may simply reflect an overall concern for image of both oneself and the organization, or it may be that these emerge as separate categories.

Health reasons. Performing green behaviors can also serve the function of contributing to an individual's health and well-being by minimizing health risks. Individuals who perceive a serious threat from environmental problems tend to be more likely to engage in pro-environmental behaviors such as recycling, purchasing environmentally safe products, conserving water, and limiting driving to reduce pollution (Baldassare & Katz, 1992). Perceived health risk also predicts behaviors related to environmental activism (Seguin, Pelletier, & Hunsley, 1998). I expect employees to cite avoidance of health risks and gaining health benefits as reasons for engaging in pro-environmental behaviors.

Social norms. Green behaviors may also serve a social function for employees, as participation in these green or ungreen behaviors may be a way to gain approval from supervisors and other coworkers and to feel like part of a group. The power of social norms in motivating people to act is well established. Social norms are an individual's beliefs about what typical behaviors in a given situation are and whether people morally approve or disapprove of behaviors. They serve to guide individuals' behavior and their interpretations of what is appropriate behavior (Goldstein, Cialdini, & Griskevicius 2008; Cialdini, Reno, & Kallgren, 1990; Schultz, 1999). Goldstein et al. (2008) examined the effect of social norms on pro-environmental behavior in hotels to see if invoking social norms could increase the number of towels that guests reused. They found that people who received normative information about other guests that stayed in the hotel room were significantly more likely to reuse their towels at least one night during the stay than those who did not receive any normative information. Werner and Makela (1998) found

that one factor influencing whether people redesigned routine recycling tasks to make them more intrinsically rewarding was whether the individuals had friends, neighbors, or relatives that encouraged them to recycle.

I expect that employees will cite social norms as motivating pro-environmental work behavior, given that there may be social norms or an office culture related to environmental concern. An organization's commitment to performing environmental behaviors has been found to predict individual employee recycling and paper reduction within the workplace (Lee, De Young, & Marans, 1995). Environmental social norms should be relevant within the workplace, where employees often are concerned about following examples that are set by their coworkers and superiors, as well as organizational norms and values.

Environmental amotivation. Amotivation is when an individual lacks the motivation to act. According to Deci and Ryan, amotivation may stem from three factors. First, individuals may not value the outcome of their actions (Deci & Ryan, 2008; Ryan & Deci, 2000). With respect to the environment, individuals simply may not value environmental sustainability. Others may think that their actions will not result in desired outcomes, in which case they could value the environment but believe that their actions will not have an impact on it. Lastly, individuals could be incapable, or believe they are incapable, of performing the behaviors that could lead to the valued outcome. Deci and Ryan's (2008) conceptualization of the factors leading to amotivation resemble the three components of Vroom's (1964) Valence-Instrumentality-Expectancy (VIE) model, with valence corresponding to whether the environment is valued, expectancy relating to

whether the individual expects to be capable of successfully performing environmental behaviors, and instrumentality relating to whether performing the behavior will lead to environmental sustainability. By examining the valence, instrumentality, and expectancy of different courses of action, people make decisions about how to expend their effort based on the outcomes they can expect. If any one of the VIE components is deemed to be small, or non-existent (i.e., one is apathetic toward the outcomes of the behavior, one does not think the behavior will lead to a desired outcome, or one does not feel capable of effectively performing the behavior), then the individual would not be motivated to take that action.

Studies that have examined inaction with respect to the environment have identified reasons similar to the expectancy theory elements. For instance, Pelletier, Dion, Tuson, and Green-Demers (1999) found that people remain inactive due to "strategy beliefs" about whether their behavior will lead to the desired outcome, "capacity beliefs" about whether they have the capacity to perform the behavior, and "effort beliefs" about whether they feel they can sustain the effort required for the behavior. Here strategy beliefs mirror concerns about the instrumentality of one's behaviors and both capacity and effort would be considered to be related to individuals' expectancies about whether they believe they can successfully perform the behavior.

Based on previous research and theory, there are several categories of barriers to green behaviors which I expect to emerge. These categories include: *apathy*, *habit or personal preference*, *availability*, *lack of knowledge*, and *lack of self-efficacy*. Conversely, these amotivation categories also serve as forces that lead individuals to

choose to engage in behaviors in the context of green behavioral performance, many of which help fulfill agency goals related to perceiving control over one's environment (cf. DeShon & Gillespie, 2005).

Apathy. Amotivation stemming from not valuing an outcome is reflected by feelings of apathy. Many people are simply ambivalent regarding environmental concerns. For instance, they may not believe human activities pose a serious threat to the environment or may endorse the dominant social paradigm (DSP), which is characterized by an anthropocentric view of the world in which humankind is seen as above the rest of nature, in which abundance, progress, growth, and prosperity are highly valued, and in which a prevailing belief that science and technology can find solutions to ecological problems (Dunlap and Van Liere, 1978; Dunlap, Van Liere, Mertig, & Jones, 2000). I hypothesize that there will be employees who do not engage in environmentally responsible behaviors, or who act in environmentally irresponsible ways within organizations, because they simply don't care about the outcomes of their behaviors, such as their impact on the environment.

Habit, personal preference. One function served by individuals' behavior is that of comfort or familiarity with a particular way of doing things. For instance, individuals may have preferences for reading electronic or paper copies of an article. When people are used to reading articles one way, they may continue to do so out of habit. One employee may prefer reading on the computer because he or she can zoom in on the text, while another may prefer to give his or her eyes a break from staring at a computer screen by reading a paper copy. Similarly, employees may enjoy the freedom and efficiency of

driving into work, while others may enjoy taking public transportation so that they can get work done or read for pleasure during their commute. These are typically individuals' preferences toward other behaviors (i.e., how they prefer to read documents or whether one prefers to drive) which have unintentional impacts on the environment. Since these individuals are not actively making an environmental decision when they act out of habit or personal preference, I consider this motive at the amotivated end of Deci & Ryan's (2000) continuum and expect it to be cited as a reason why employees engage in green or ungreen behaviors.

Environmental knowledge. Many studies have theorized about or demonstrated the importance of knowing how to perform environmental behaviors on the actual performance of these behaviors (Gamba & Oskamp, 1994; Green-Demers, Pelletier, & Menard, 1997; Vining & Ebreo, 1990). I expect that just as household behaviors depend on knowing about what services are available within the community and how to use them, employees will also need to be aware of which environmental options available within their workplace in order to use them.

Availability of environmentally-friendly options. In order for employees to engage in specific environmental behaviors, they need to have the option to do so. If there are not recycling bins or green office products available at work, then employees will not be able to recycle or make responsible product choices. Along with availability, a related situational variable is whether or not the employer-provided option is convenient and accessible. Previous studies have found that when environmental behaviors are perceived as difficult, individuals are less likely to engage in them (Howenstine, 1993;

Lindsay & Strathman, 1997; Vining & Ebreo, 1990). Conversely, when recycling containers are located in more convenient locations, people are more likely to recycle in both academic settings (Ludwig, Gray & Rowell, 1998) and in workplaces (Brothers, Kranz & McClannahan, 1994). I expect employees to cite availability or convenience of environmental options as serving to motivate or amotivate them to perform environmental behaviors, since workplaces will vary in the extent to which they offer eco-friendly options and how convenient these options are when available.

Lack of self-efficacy. The last reason a person may be amotivated with respect to the environment is because they believe that that are not capable of performing the necessary behavior or that they don't expect their behavior to have an impact on their desired outcome (low expectancy). Self-efficacy is conceptualized as one's beliefs about his/her capability to perform a behavior or attain specific goals (Bandura, 1997). Individuals may see their impact as small or negligible in the grand scheme of things, believe that the situation is out of their control, or believe that even if they engage in sustainable behaviors the actions or irresponsibility of others may interfere with any potential impact. Thus, lacking self-efficacy about the impact of one's behaviors on the ultimate outcome they desire is expected to be cited as a motive for ungreen behaviors.

Cross-Cultural Replication

After initially investigating environmental motives of U.S. employees, the present study will be replicated in Europe. The aim of this replication is to determine if the motive taxonomy created using the U.S. sample will encompass the motives cited by European employees. If the taxonomy proves to be appropriate for use across cultures, it

can be used to examine the frequency of environmental motives of employees in Europe, representing the first attempt to understand the structure of green motives cross-culturally.

Goals of Study 1

There are three main goals of Study 1 (see Figure 1). First, I aim to identify categories of motives and barriers to employee green behaviors. Second, I hope to establish an empirically-based motive taxonomy of reasons why employees engage in green behavior at work. This will aid in understanding why individuals engage in green behaviors at work, as well as serve as a basis for future studies to assess motives for green behavior. Third, I will replicate the taxonomy replicated cross-culturally in order to determine the applicability of this motive framework to other cultures. The goals of this study will be accomplished using three samples, described below.

Purpose of Sample 1. The purpose of Sample 1 is to conduct an open sort of motives that working individuals cite as reasons for performing green behaviors into motive clusters. In other words, examples of the motives working individuals give for green behaviors will be sorted into homogenous groups, and working categories of motives and barriers will be created.

Purpose of Sample 2. The purpose of Sample 2 is to conduct a confirmatory sort with a new set of motives to examine the suitability of the motive and barrier categories established in Sample 1. Modifications to these categories and their definitions will be made as needed. This retranslation step will result in a finalized taxonomy of functional motives for green behavior.

Purpose of Sample 3. In Sample 3, the cross-cultural replicability of the motive taxonomy established in Sample 2 will be examined. Motives from critical incidents collected in Europe will be sorted into the taxonomy established in Sample 2 with the aim of determining if the taxonomy is appropriate for cross-cultural use.

Method

Ones and Dilchert (2009) conducted a critical incident study in order to examine environmental behaviors of employees within their workplaces. They defined green workplace behaviors as "scalable actions and behaviors that employees engage in or bring about that are linked with and contribute to environmental sustainability" which can range from double-sided printing to serving on an environmental committee (Ones & Dilchert, 2009). The study employed Flanagan's (1954) critical incident technique and resulted in the first empirical taxonomy of green and ungreen behaviors performed at work. As a part of that effort, the motives and barriers to these green and ungreen behaviors were also collected. The present study sought and obtained access to this database for use in the present study.

The methodology followed typical critical incident methodology in which an initial sample of incidents is sorted into a set of working categories which are tentatively defined. Sample 1, described below, aimed to accomplish this. As a follow up, additional incidents were then classified into these categories, with new categories created and existing categories redefined as needed to arrive at a final taxonomy for employee motivations to perform environmentally responsible and irresponsible behaviors in the workplace. Sample 3 was a replication of Sample 2.

Sample 1: Initial Development of Functional Green Motive Categories

Database. Data were extracted from 1,274 critical incidents contained in the database of Ones and Dilchert (2009). These critical incidents originated from structured interviews conducted with 274 participants between February 2009 and January 2010. The critical incidents contained a total of 1,827 motives that were cited by participants. Males comprised 54.9% of the sample, and the average age of participants was 25.8 (*SD* = 11.1). All participants were working adults and represented a wide range of ethnicities, educational levels and ages (range: 18 – 74). Interviewees were from 157 organizations across 20 U.S. industries (approximating U.S. industry proportions) and represented a wide variety of occupations and positions held within organizations. Additional details can be obtained from Ones and Dilchert (2009).

Critical incident interviews. The critical incident database included data from structured interviews designed to collect critical incidents according to Flanagan's (1954) critical incident technique. Interviewees were asked to recall a specific example of an employee who performed a behavior with a positive or negative impact on the environment. The participant was asked for a brief description of the incident, what led up to the incident, what the consequences of the incident were, and whether they considered the incident as having a positive or negative impact on the environment. The participant was asked if the person doing the behavior "provided a specific rationale for his/her behavior" which allowed the participant to state the specific motive(s) associated with be specific eco-friendly or eco-unfriendly behavior described in the critical incident. If the rationale was unknown or not given, the interviewee was asked their perception of

why the behavior occurred. Each interviewee could report on multiple incidents, and interviews continued until the participant could no longer think of any more examples of green or ungreen behaviors.

The individuals performing the behaviors were 58% male and had an average age of 33.8 years (*SD* = 13.7, range 14 to 74). The performers represented a wide range of ethnicities, educational levels, ages, occupations, and levels within the company.

Procedure

Classification of motives. Flanagan's (1954) guidelines were followed when sorting the motives collected from the interviews into categories of motives for environmentally responsible and irresponsible behavior. The first phase included an initial open sort of the motives which had been collected prior to September 2009 (See Phase 1, Table 1). The data were examined and any duplicate motives eliminated, resulting in a set of unique motives. Two subject matter experts independently sorted these motives into tentative categories using WebSort.net, an online card sort program. In the second phase, two additional subject matter experts examined the resulting categorizations, taking note of any discrepancies in the categories or how individual motives were sorted into categories (See Phase 2, Table 1). Discrepancies were resolved by discussion until a consensus was reached.

Sample 2: Confirmatory Cross-Validation of the Taxonomy for Functional Green Motives

Following the critical incident methodology, a second study was conducted in order to obtain additional critical incidents which could be sorted into the categories established in Sample 1 by a new set of subject matter experts, with a third SME used for any disagreements.

Database. Permission was again obtained to make use of the existing Ones and Dilchert (2009) database of critical incident data. This dataset was created based on interviews conducted with employees between September 2009 and January 2010, using the same procedures that were used in Sample 1. The purpose of the data collection was to obtain critical incidents to sort into the tentative motive categories that were created using Sample 1 data.

Sample 2 included interviews with 133 participants from 92 organizations across 16 U.S. industries. An additional 773 critical incidents were collected in the second set of employee interviews along with 894 motives for these behaviors. The average age of interviewees was 36.7 (*SD* = 13.8, range 18 - 74) and the sample was 45% male and 54% female. As in Sample 1, participants again represented a wide range of ethnicities, educational levels, ages, industries, occupations, and positions within the organizations. The same was true of the employees who were reported on as performing the green or ungreen behaviors. The sample was 48.6% male and 44.6% female, and the average age of employee reported on was 38.1 (*SD* = 12.5, range 16 - 74).

Procedure: Confirmatory sort and category modification. The new critical incidents were classified into the tentative categories established in sample one (See Table 1, Sample 1, Phase 2). Any critical incidents that were unable to be categorized were reviewed to see if additional dimensions were needed to represent the functional motives of environmental behavior. Ninety-six percent (or 744) of these incidents could be attributed to at least one of the categories established in the initial sort, while 29 critical incidents did not contain enough information or could not be categorized into the one of the 14 categories. This retranslation step resulted in the identification of a fifteenth motive category, social responsibility, which was added to the taxonomy.

The set of 15 categories was then theoretically and conceptually reviewed by two senior organizational researchers and a team of eight industrial/organizational psychology researchers studying environmental sustainability at work. This review included an examination of the self-efficacy category which was hypothesized, but did not emerge as a separate dimension. Self-efficacy was not well-represented by the existing categories. Self-efficacy is defined as one's beliefs about his/her capability to perform a behavior or attain specific goals (Bandura, 1997). An individual's self-efficacy with respect to being able to perform environmental behaviors and have an impact on the environment is distinct from not knowing how to perform a green behavior and availability of a green resource. As such, the self-efficacy dimension was included in the taxonomy, resulting in 16 categories of motives for and barriers to employee engagement in environmentally responsible or irresponsible behaviors at work. The entire set of incidents was then used to fine-tune the final category definitions.

Rater Agreement and Frequency Data. Rater agreement was computed for the final classifications by averaging the agreement across the number of raters. The frequency with which each motive was cited by employees was also computed within each functional motive category.

Sample 3: Cross-Cultural Replication in Europe

The purpose of the data collection was to obtain critical incident data from European employees in order to sort the motives into the categories established at the end of Sample 2 and to determine if any new categories are needed to make the environmental motive taxonomy suitable for use across cultures. The motive taxonomy can also be used to assess the motives European employees give for engaging in green or ungreen behavior.

Database. A cross-cultural replication modeled after the Ones and Dilchert (2009) study was conducted in Europe (Hill et al., 2011). Permission to utilize the European database was sought and obtained. Interviews with European employees were conducted in Belgium, England, France, Germany, Greece, Ireland, Italy, and Turkey and also included workers from Bulgaria, Czech Republic, Denmark, Finland, Norway, and Sweden. Interviews were conducted between February 2010 and April 2010. Participants were interviewed in English using procedures that were almost identical to those used in Sample 1 and Sample 2. The only difference was that participants were asked to report on their own behaviors at work rather than those they observed at work. This was done for two reasons (1) to ensure direct access to motives of the actors (vis-à-vis recall or

perceptions), and (2) to minimize potential for misunderstandings given that most participants were non-native English speakers.

Sample 3 included 1,002 critical incidents collected from interviews with 208 participants from 70 organizations. These interviews included 1,079 motives for green workplace behavior. There were 86 different types of jobs across 15 industries represented. The average age of interviewees was 33.6 (*SD* = 9.6, range 22 – 65) and the sample was 57.5% male and 42.5% female. The average number of motives given per incident was 1.08 and ranged from one to two.

Procedure: Confirmatory sort. The European critical incidents were independently classified by two subject matter experts into the 16 motive categories that were established by the end of Sample 2 (See Cross-national replication, Table 1). A third SME was used as a tie-breaker. Final categorizations were accomplished through discussion and consensus. The rater's agreement on motive classifications and frequency data were also computed within functional motive categories.

Summary of Study 1

This study developed and tested, using three critical incident interview data collections, a theoretically-grounded and empirically-supported taxonomy of employee environmental sustainability motives. First, a working motive taxonomy was created using an initial set of critical incidents. A second data collection (Sample 2) was used to conduct a confirmatory sort to refine the taxonomy. Lastly, critical incidents collected from Europe were utilized to determine whether or not the taxonomy is applicable to a cross-cultural context. As a result of these three data collection efforts, a comprehensive

motive taxonomy of employee environmental sustainability motives was constructed, and its appropriateness for use in other countries determined.

Results

Sample 1 Findings

The initial exploratory sort of these unique motives resulted in 14 motive categories. The two raters independently came up with similar sets of motive categories which were reviewed by the two additional subject matter experts. These SMEs made final decisions about minor variations in the naming of categories and clustering of similar categories. For instance, one rater combined Health and Safety motives into one category (Health/Safety) and the other kept them separate. The second set of SMEs retained the finer-grained distinction in this case.

The identification of 14 categories lends further support to taking a functional approach to the study of motivation, as the categories represent a wide range of different functional motives that environmental behaviors can serve. The working taxonomy includes the following functional motive categories: environmental benefits, altruism, health reasons, safety reasons, financial/cost considerations, public relations, cultural norms, requirement, habit/personal preference, availability, lack of achievement drive, apathy, carelessness, and lack of knowledge. The motive categories are described in further detail in Table 2.

The observed categories are similar to those hypothesized based on our theorizing and review of the literature related to green motives within households. Of the 12 motive categories that were initially hypothesized, only self-efficacy did not emerge in Sample 1.

Self-efficacy, or one's beliefs about his/her abilities to perform a task, may have been subsumed by other categories related to one's capacity to perform green behaviors, such as knowing how to perform the behavior and availability of resources to effectively perform the behavior. These categories, however, do not quite fully capture self-efficacy.

It is important to note that social norms did not emerge as specifically worded in the hypothesized categories. However, it is represented by the category of cultural norms. The label "cultural norms" better reflects the specific motives in the critical incidents and is one's societal, office, or group culture guiding what behavior is appropriate in a given situation. If an employee cites cultural norms as a motive, they are cognizant of what other people or employees in the same situation would do. Thus, the category of cultural norms does encompass social norms and essentially reflects the same concept. The public relations and job requirement motives also reflect concern with social norms to an extent, as employees may be looking to follow workplace policies and procedures and contribute to organizational values in order to be seen as an ideal employee in the way they present themselves to others within and outside of the organization.

Functional motives that emerged in the exploratory sort that were not hypothesized were the categories of safety reasons, carelessness, and lack of achievement drive. The safety reasons category is related to health reasons, but it was distinct enough to warrant its own category. Both carelessness and lack of achievement drive emerged as reasons why employees engage in ungreen behaviors. I had anticipated encountering new categories related to the performance of ungreen behaviors because research on this topic is scant. Carelessness encompasses employees being careless or forgetful at work, and

often involves an element of time pressure where employees are in a hurry or a rush, causing them to be less careful about their actions and environmental impacts. The lack of achievement drive category includes critical incidents where employees lacked the motivation and effort to seek out or use sustainable options, reflecting esteem goals related to motivation to achieve (cf. DeShon & Gillespie, 2005). Two of these three motives that were not hypothesized stem from amotivation, and in the case of achievement drive can also serve as a force enabling EGB. The number of times each motive category was cited across all incidents, as well as the proportion of times each category was cited as motives of green behavior and ungreen behavior can be found in Tables 3 through 5 and are represented in Figures 3 through 5.

Employees frequently attributed a single behavior to multiple motives. Environmental behaviors were attributed to a single motive 63.5% of the time and to two motives in 31.2% of the cases. The most common combination of multiple motives was the environmental benefit and financial/cost consideration motives, which were cited together in 8.6% of the critical incidents. Given that these were the two most frequently cited motives overall, it makes sense that this was a common motive combination. Environmental benefit and Habit/personal preference were the second most common combination (3.5% of incidents). This pairing reflects that people engage in EGB for the environmental benefits as well as preferring or being in the habit of behaviors that also have positive environmental impacts. Other multiple motive combinations comprising 1.5% or less of the total number of incidents are listed in Table 6.

Sample 2 Findings

The initial exploratory sort and secondary confirmatory sort resulted in a final taxonomy of 16 functional motives served by green and ungreen behaviors and barriers to these behaviors. Ultimately, all of the 12 categories that were hypothesized were included in the final taxonomy given the decision to include self-efficacy based on conceptual and theoretical review. The 16 motive categories and brief descriptions of each are listed in Table 2. Figure 2 shows the functional motive categories and their theoretical underpinnings with respect to where they lie on Deci and Ryan's (2000) self-determination continuum.

Social responsibility did emerge in this sample as a function served by green behavior given that it was classified as a distinct category by the subject matter experts sorting the incidents. This motive had not originally been hypothesized. The defining feature of this category is that it captures a feeling of responsibility to future generations that was expressed by interviewees (i.e., out of concern for one's family and their future).

Rater Agreement

The average proportion of rater agreement on the final categories was 93.7%. For half the motive categories, average proportion of rater agreement was over 90%, but there was a range of inter-rater agreement depending on the motive category (See Table 7). Agreement by category ranged from 97% (Environmental benefit) to 71.2% (Altruism). Some categories, such as environmental benefit, availability, and financial/cost considerations had very high inter-rater agreement, whereas for a few categories, such as altruism and social responsibility, were just above 70% agreement. This suggests that

some categories may be more difficult to distinguish from one another. The two categories with the lowest agreement, altruism and social responsibility, are similar constructs which may not be as well-defined or distinguishable from each other as other categories. While subject matter experts maintained social responsibility and altruism as separate categories, these two categories may potentially make up a higher order factor.

Taxonomy of Motives for Green and Ungreen Behavior at Work

The final proposed taxonomy of motives for and barriers to environmentally responsible and irresponsible behaviors is discussed in terms of each of the categories and how they function when motivating positive or negative environmental behaviors. The overall proportion each category was cited as a proportion of all incidents is given in Table 8 (also see Figure 6), with the top motives being environmental benefit (cited in 51.5% of incidents), financial/cost considerations (15.5%), availability (14.5%), habit or personal preference (13.8), and requirement (8.6%). Each of the remaining ten categories comprised 3.5% or fewer of the critical incidents.

Environmental benefit. The most frequently cited function served by green behaviors was the environmental benefit, which was mentioned by interviewees 50.5% of the time in Sample 2 (see Table 9 and Figure 7). While this motive primarily served to motivate green behavior, environmental reasons also cited 5.2% of the time in motivating behaviors that were deemed ungreen (Table 10, Figure 8).

Financial/cost considerations. The second most frequent motive was financial/cost considerations, cited as a motive of green behaviors 15.4% of the time. Financial/cost considerations were rarely cited as a motive by employees engaging in

ungreen behaviors, suggesting that employees encountered few situations in which ungreen options had to be used because greener options were cost prohibitive. Instead, green behaviors primarily served the function of helping employees save costs within their organizations within our sample.

Availability. The unavailability or inconvenience of a greener alternative was the top motive of ungreen behavior, cited in 25.2% negative incidents. Employee performance of ungreen behavior appears to be affected to a large extent by unavailability or inconvenience of more eco-friendly options within their workplaces. Availability and convenience of a green option was the third most frequently cited motive positive incidents (cited in 9.2% of incidents), indicating that some employees feel that they have convenient green options available.

Habit, personal preference. Habit and personal preference was frequently given as a motive for both positive (10.6%) and negative incidents (15.5%). Employees' habits, routines, and preferences with respect to specific behaviors or items often end up impacting the environment in either positive or negative ways.

Requirement. The performance of green and ungreen behaviors serves the function of meeting job requirements. Similar to habit and personal preference, this function was frequently given for both positive (6.4%) and negative incidents (11%). Employees are often guided by job duties which either require them to engage in eco-friendly or eco-unfriendly behavior.

Lack of achievement drive. Lack of achievement drive was not hypothesized in our initial theoretical taxonomy, but emerged from the critical incident interviews. Lack

of achievement drive was a category which was the second most frequently reason for engaging in negative behaviors, given as a motive in 16.8% of negative incidents, while it was not cited as a motive of green behaviors. Examples of this category's responses for negative behaviors reflect a lack of achievement drive, For laziness, as a reason why individuals were engaged in the ungreen behaviors. Thus, lack of achievement drive effectively functions as a barrier to green behavior; if individuals do not have the drive to seek out a green option, they instead engage in a behavior with negative environmental impacts.

Altruism. Altruism emerged as a category, primarily serving to motivate green behavior and not caring to be altruistic was also a motive for some behaviors which were deemed ungreen.

Cultural norms. One's societal, group, or office norms emerged as a motive of both positive and negative environmental behaviors. In both cases, individuals are guided by what others in the same situation would do with respect to the environment. Thus, employees may either see others at work or in society performing eco-friendly or eco-unfriendly behaviors and then draw on these experiences to shape their own behavior.

Apathy. The category of apathy, or being ambivalent to the impact of one's actions, was only given as a rationale for ungreen behaviors in this sample. Given that apathy is a barrier to ungreen behavior it makes sense that apathy did not motivate ungreen behaviors.

Carelessness. The category of carelessness was not hypothesized, but did emerge in our study. Carelessness is when forgetfulness or haste interferes with one's

performance of environmentally friendly behaviors, resulting in the performance of ungreen behavior. Examples from the interviews include being in a hurry or a rush and forgetting to do something, such as turn off a light or computer. Carelessness comprised 7.1% of the negative incidents, but was not cited as a motive of green behavior.

Social responsibility. Social responsibility was the motive that emerged in this sample and reflects a sense of responsibility to future generations. It was cited as a motive in 1.5% of positive instances and was not cited as a motive for ungreen behaviors.

Lack of knowledge. A lack of knowledge was cited as a reason employees engage in ungreen behaviors. In these circumstances, employees conveyed that they did not have the knowledge to engage in greener behaviors. As such, a lack of knowledge served as a barrier to green behavior. In a small number of instances, knowing how to perform a green behavior was cited as a reason for engaging in the behavior. Thus, this category consists of knowing how as a motive for positive behaviors and lack of knowledge for negative behaviors.

Health reasons. Both green and ungreen behaviors served a health function for individuals, as interviewees mentioned this motive for both types of behavior. While green behaviors are often thought of as healthier, in a few instances, there were ungreen behaviors that were viewed as healthier options.

Public relations. In a small number of instances, green behaviors served as public relations functions for employees. Employees were able to promote their organization by engaging in ungreen behaviors, which was expected given that one of the three main reasons organizations engage in environmentally sustainable behaviors is to project a

"green" image. Public relations was not cited as a motive of ungreen behaviors, likely given that employee engagement in ungreen behaviors would not serve to maintain a positive public relations image.

Safety reasons. Safety reasons were cited as a motive for ungreen behaviors, but were only cited in one instance as a function served by proenvironmental behavior. Thus, in this sample, safety benefits were primarily achieved by employees performing ungreen behaviors at work, or employees are using safety reasons to justify ungreen behaviors more than they do green behaviors.

Lack of self-efficacy. As discussed, lack of self-efficacy was added after a theoretical and conceptual review. As such, there were no motives in this category.

Motives of green compared to ungreen behavior.

As discussed, many of the categories serve to motivate either primarily positive or primarily negative behaviors (Figure 9). Categories such as environmental benefit, financial/cost considerations, and cultural norms typically were cited as motives of positive behaviors, whereas lack of achievement drive, apathy, carelessness, and safety reasons were cited as motives of ungreen behaviors. In contrast to categories that primarily motivated either green or ungreen behavior, the categories of availability, habit or personal preference, and job requirement served to motivate both. These three areas may be ideal for interventions because not only are these three motives the most endorsed after environmental benefit and financial/cost considerations, but also because changes in these areas could serve to reduce the number of ungreen behaviors as well as increase green behaviors.

In this sample, 142 incidents (18.3%) could be attributed to more than one motive and the mean number of motives across incidents was 1.2 (*SD* = .48). The most frequent motive combinations from Sample 2 are presented in Table 11. Again, the most frequent multiple motive combination was environmental benefit and financial/cost considerations, which were cited together in 6.5% of the critical incidents in this sample. Other motive combinations were cited together in 1.2% of all critical incidents or less.

Sample 3 Findings: Cross-Cultural Replication in Europe

All of the 1,002 critical incidents included in the European data set could be attributed to at least one of the 16 motive categories described above. Furthermore, no potentially new motives were encountered in the European data. As such, the motive taxonomy originally developed with the U.S. samples appeared to be appropriate for capturing motives cross-culturally, at least in Western cultures. Overall rater agreement was 99%. For most motive categories, average rater agreement was over 90% and ranged from 100% for Environmental benefits and several smaller motive categories to 67% for Cultural norms (Table 12).

The most commonly cited motives across employee green and ungreen behaviors in Europe are given in Table 13 (also see Figure 10). European employees were most highly motivated by the environmental benefits of their green behavior, with 78.3% citing this as a function served by green behavior. The second most cited motive in the European sample was availability, which was cited in 8.9% of incidents, followed by financial/cost considerations (3.9%), habit/personal preference (3.8%), and requirement (3.8%).

In terms of the most common motives for positive EGBs, European employees were most highly motivated by the environmental benefits of their green behavior, with 87.2% citing this as a function served by green behavior (Table 14 and Figure 11). The second most cited motive in the European sample were financial/cost considerations (4.0%), followed by availability cited in 2.7% of incidents. All of the other functions served by green behaviors were each cited by less than 2% of employees.

Unlike the pro-environmental behaviors, the barriers to negative behaviors were not concentrated in a single motive category (see Table 15 and Figure 12). The most frequent barrier was the lack of availability of more sustainable options, cited by 34.4% of European employees. The next most frequently cited function served by negative environmental behaviors was that the behavior was required of the employee, which was true in 20.1% of instances. Habit or personal preference was comprised 16.4% of negative motives. This was followed by carelessness (10.1%) and health reasons (7.4%).

In the European sample, a single motive was cited 92.5% of the time, whereas multiple motives were cited 7.5% of the time. Similar to the US samples, the most frequent multiple motive combination in the European sample was environmental benefit and financial/cost considerations, which were cited together 3.2% of the total incidents (Table 16). This was followed by environmental behaviors serving both an environmental and health function (1.1% of incidents). Environmental benefits and availability were cited together for 1% of incidents. Because environmental benefit was by far the most frequently cited motive, it is not surprising that environmental benefit is included as one of the motives many of these top combinations.

Summary of Findings and Discussion

Implications for Research on Employee Green Behaviors

The present study established a working taxonomy of 16 functional motives that U.S. and European employees have for engaging in green behaviors at work. All of the hypothesized categories emerged after the critical incidents were sorted into categories. Also as expected, motives that are more specific to the workplace emerged, including a public relations benefit (i.e. "look good for the public") and job requirement. There are however, equivalents within households, where people may be concerned with presenting a "green" image or be required to perform certain behaviors such as vehicle emission checks. Several categories did emerge that were not initially hypothesized based on our review of the literature, including carelessness and lack of drive. The emergence of barriers that were not hypothesized was anticipated given that relatively less empirical research has been conducted examining why people engage in ungreen behaviors.

Across cultures there are similarities in the most frequent motives cited, with minor variations between U.S. and European samples. One limitation of this study is that specific comparisons of percentages cannot be made since it was not designed to directly compare the U.S. and European frequency data. The samples are not matched in terms of employees' occupation and industry and critical incidents from the U.S. were primarily other-report whereas those from the European sample were entirely self-report. However, general similarities and trends across cultures can be examined. In the U.S. and Europe environmental benefit, financial/cost considerations, and availability were among the most frequently cited motives across all incidents. Financial/cost considerations were the

second most frequently cited in the U.S. samples and the third most frequently cited in the European sample, indicating that U.S. employees may value the financial benefits of green behaviors to a greater extent than Europeans. Also, habit/personal preference was the third most frequently cited motive of green behavior in the U.S. sample, but was not a top motive in the European sample, indicating that green behaviors may be more routine for American employees. Interestingly, for ungreen behaviors habit and personal preference is cited with about the same frequency across cultures.

In terms of the motives for ungreen behaviors, the categories that were most frequently cited were again similar in the U.S. and Europe. In both samples, availability, habit or personal preference, requirement, and carelessness were among the top motives for ungreen behavior. The motive category of lack of achievement drive was a top motive of U.S. employees' ungreen behaviors, while it was cited infrequently by Europeans. This could be a function of the other-report/self-report difference in data collection between the samples. When responding via self-report, European employees may have been reluctant to admit to lacking achievement drive, or being too lazy, to perform sustainable behaviors. Instead, they may have been more likely to attribute to more neutral motives such as not having a green option available or being required to perform ungreen behaviors. Alternatively, Americans may have been more likely or willing to attribute green behaviors of others to laziness.

Implications for Practice

The idea that environmental behaviors serve multiple functions suggests that there are myriad ways to appeal to individuals when trying to increase the performance of

green behaviors or decrease ungreen behaviors in organizations desiring to be more environmentally responsible. Many employees choose to engage in green or ungreen behaviors because they serve to help them fulfill their psychological needs and achieve desired outcomes. Most of the motives can be targeted by either emphasizing that green behaviors can serve to meet individuals' psychological needs and desired outcomes or by modifying the work environment. Evidence from research on volunteering suggests that matching a message to an individual's personal motives will be successful in changing behavior. Clary, Snyder, Ridge, Miene, and Haugen (1994) found that functionally matched messages were more effective in persuading people to volunteer than mismatched messages. Thus, one would expect messages that are tailored to individual motives to be most effective in increasing green, and decreasing ungreen, behaviors at work.

Framing green behaviors as a means of achieving personally desired goals or outcomes would be effective for two of the most frequently cited motive categories: environmental benefits and financial or cost considerations. Employers should emphasize when behaviors or tasks have positive environmental impacts given that helping the environment was by far the most frequent function served by green behaviors in both the U.S. and European samples. Employees are also motivated by financial and cost considerations. Thus, it would be useful to make employees aware of any financial or cost benefits of green behaviors to the organization or employee. Encouraging employees to engage in green behaviors by subsidizing greener alternatives or offering rewards for green ideas could also serve to increase green behaviors. These interventions may be

more effective within U.S. organizations given that the percentages suggest that American employees value financial and cost considerations to a greater extent than Europeans.

After environmental benefits and financial/cost considerations, the most frequently cited motives for all behaviors in the U.S. sample was availability, habit or personal preference, and requirement. These three motives were also among the top motives of Europeans. Interventions in these areas may be particularly effective given that they could serve to decrease ungreen behaviors as well as increase green behaviors. In terms of motives for ungreen behavior, many employees felt green options were not available or convenient at work; this was given in 25.2% of incidents as a motive for behaviors with a negative environmental impact in the second U.S. sample and in 34.4% of incidents in Europe. The finding that many ungreen behaviors occur because of this lack of availability suggests that employees may be looking to use green options, but are unable to find any that are available or convenient. Modifying the workplace to make a green option available or more convenient may be an easy way to increase green behaviors within organizations lacking these resources since interventions of this nature have been effective (Brothers, Krantz, & McClannahan, 1994; Ludwig, Gray, & Rowell, 1998). Having green options available and convenient also targets the motive category of lack of achievement drive, which was the second most frequently cited reason for engaging in ungreen behaviors, since employees would have to go out of their way to not use convenient green options.

A promising area for intervening to increase green behaviors and decrease ungreen behaviors is with employees citing habit or personal preference, such as preference for a certain type of cup or a paper copy of a document. In these cases, it is important for employers to take employee preferences into account when implementing green initiatives and to think about ways to make green behaviors a part of employees' routines. Since many of the employee preferences have to do with interfacing with technology, incorporating training about programs designed to make managing electronic documents easier, such as pdf editing programs, could help employees feel more comfortable with technology and paperless work environments. Having employees commit to individual or department sustainability goals could also help change employee habits and routines as attention is directed toward goal-relevant behavior. In these ways, workplaces can make green behaviors more preferable and habitual for their employees.

A job requirement was cited 6.4% of the time as a motive of eco-friendly behaviors and comprised 11% of the motives for ungreen behavior given by U.S. employees. This suggests that in the U.S. employers' policies and procedures often set standards for employees' behaviors with respect to the environment such that employees are often being required to do behaviors that help or harm the environment. European employees rarely cited requirements as a motive of green behaviors, but 20.1% of the motives for ungreen were due to requirements. Across cultures, organizations may want to examine whether they can change job requirements to include more environmentally responsible behaviors by soliciting input or ideas from individual employees or green teams about how their job, or the organization's operations as a whole, could be more

sustainable. In some instances, thinking a green or ungreen behavior is required could be an issue of employee misperception rather than employer requirement. Employees might believe that they are required to engage in ungreen behaviors, when it would be acceptable for them to incorporate green practices if they still get their job done. If this is the case, management should be sure to make it clear to employees that they are free to work in more sustainable ways, and that they have the flexibility to incorporate green practices into their job. With the greening of occupations and workplaces, it is likely that in the future a greater number of employees will be required to engage in green behaviors, while fewer would be required to engage in ungreen activities.

Outside of these five motive categories, the other ten categories each accounted for a smaller fraction of the total critical incidents. Thus, potential for intervention in these areas will be discussed briefly as they will likely have less of an impact within organizations than the aforementioned interventions. As with environmental benefit and financial/cost considerations, other motive categories could benefit from emphasizing when green behaviors serve employee motives or values. For employees concerned with health or safety, organizations should highlight the respective health or safety benefits of green behaviors. Similarly, framing green behaviors as enhancing public relations should be effective for employees motivated to make a good impression and represent their organization effectively. Employers can let employees know that engaging in green behaviors is one way to enhance the organization's public image as green behaviors have come to be increasingly valued by customers, investors, and job applicants.

Interventions could also have an impact when employees are impeded by a lack of knowledge about where to find or how to use green resources. Thus, having informational signage or emails about eco-friendly resources available in the workplace and how to use them would be helpful. In some cases, employers may want to offer sustainability training or incorporate this information into employee orientations or orientation materials. Employee carelessness is another category which may be modified to some extent. Management might consider posting reminder signs to turn lights and computers off or by have one employee in charge of making sure lights, computers, and other office equipment are turned off at the end of the day. These interventions target instances where employees are in a rush and forget to take simple steps that can reduce resource usage.

Employers can do little to change cultural norms from one's country or cultural background, however they can attempt to modify the workplace climate or culture. Incorporating environmental values into the workplace could be achieved by modifying company policies or procedures, selecting environmentally-minded employees, or similar measures.

Organizations that have a large number of employees who are apathetic toward green behaviors or who have a lack of drive may only be able to motivate these employees by making green behaviors a job requirement or a component of job performance, or by appealing to other motives that may have a stronger influence on the individuals, such as offering extrinsic rewards or praise. The motive categories of altruism and social responsibility are the least likely to be influenced given the innate

nature of these two traits and the difficulties with trying to induce concern for others and the future.

This study suggests many promising areas for interventions to reduce harmful environmental behaviors and increase green behaviors based on the motives of green and ungreen behaviors, but it does not provide evidence about whether these interventions would be successful and which would be most effective. While a full review of intervention research is beyond the scope of this manuscript, much research has been done on the effectiveness of different types of interventions within household environments, as well as a limited number of studies within the workplace (for a review see Abrahamse et al., 2005; Osbaldiston, 2011; Steg & Vlek, 2009). This past research, combined with the present study's suggestions for areas of intervention given the specific motives of individual employees, offers a good starting point for designing workplace interventions and testing their effectiveness.

Limitations

The present study relied on employees to report on green behaviors that they observed, or had performed themselves, in the workplace. Given that in a majority of cases participants reported on other employees, it was up to the participant to accurately recall the person's stated motive or to correctly perceive their motive. Even when a motive is accurately recalled, there is still the concern that what the person stated as a motive for green behavior was not necessarily their true motive, but rather how they wanted to be perceived.

Also, people may be unaware of, or not attuned to, their actual motives. For instance, social norms often influence green behavior, yet individuals may underestimate the extent to which they are influenced by social norms. A recent study found that while participants ranked normative social information as the least likely to impact their behavior, normative social information about their neighbors' conservation behavior actually had the greatest impact on the participants' own conservation behaviors compared with information about how conserving could help the environment, help save the participant money, or help the participant be socially responsible (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). Employees in the present study may not have perceived social norm pressures, or thought of them as readily as other motives, so the frequency of the categories encompassing social norms may be underestimated. Nevertheless, it is crucial to recall the purpose of Study 1: to identify as comprehensively as possible motives for pro-environmental behaviors at work. The identification of 16 clusters of distinguishable motive categories is the focal contribution of Study 1. The extent to which these categories of behaviors most frequently encountered and actually motivate behavior must await the construction of a standardized measure that can be utilized. Such a scale is constructed in Study 3 of this dissertation.

Another limitation of the study is that employees may have been reluctant to give examples of behaviors that have negative environmental impacts. In Sample 2 the ratio of examples of green to ungreen behaviors was four to one, indicating either that employees engage in more green than ungreen behaviors, that employees more readily recalled green than ungreen behaviors, or that employees were reluctant to give examples of ungreen

behaviors. Given that many employees were contacted at their place of employment and examples were linked to the employee's organization, this may have caused employees to be selective in the examples they provided and careful to present their organization in a positive light, even though they were notified that their responses would be confidential. Also, as discussed, one of the three main reasons organizations engage in green behaviors is to improve their public image. Thus, many organizations may highlight information about their green behaviors and initiatives to their employees and the public. Some employees may be expected to have a working knowledge of their organization's green initiatives, making examples of green behaviors more readily available to some employees. However, across the three samples 700 examples of negative behavior at work associated with 857 motives were still identified, making it likely that a comprehensive set of motives for and barriers to ungreen behavior emerged.

Although an effort was made to investigate the cross-cultural replicability of the motives taxonomy by interviewing employees in Europe, not all cultural clusters were able to be examined. Notable omissions include Confucian Asian, Southern Asian, and Sub-Sahara African cultural clusters. Employees in less industrialized regions who are more dependent on natural ecosystems may prioritize survival-related needs over consideration of long-term environmental impacts (Steg & Vlek, 2007; United Nations Intergovernmental Panel on Climate Change, 2014). While the generalizability of the environmental sustainability motive taxonomy is an empirical question that should be examined, research on cross-cultural generalizability of related constructs such as values and cultural dimensions show consistencies across nations. Schwartz's (1994) has found

a near-universal set of values related to maintaining cooperative relationships, productive performance, and gratifying self-oriented needs and desires. While the importance groups place on different values may vary, the relative importance of these values is consistent. Similarly, Hofstede (1980; 2001; Hofstede, Hofstede, & Minkov, 2010) identified a set of universal national cultural dimensions that influence values at work, with variation along these dimensions distinguishing countries relative to each other. Given the universal nature of values, I expect the motive categories identified in this study to encapsulate the reasons employees engage in green behavior. The extent to which each category motivates behavior will likely vary across cultures and is an important area to research.

Conclusions

A taxonomy in any field can offer a useful framework for classifying objects or concepts, for identifying properties about these objects or concepts, and for structuring further assessment and scientific study in that domain. One of the most well-known classification schemes is the Linnaean taxonomy in biology in which organisms are classified according to their physical characteristics and relationships with one another. Occupational researchers are aided by job and industry classification systems, such as the Occupational Information Network - Standard Occupational Classification (O*NET-SOC) and the North American Industry Classification System (NAICS), which help classify jobs and businesses for data analysis and comparison. Campbell, McCloy, Oppler, and Sager's (1993) model of job performance identified eight dimensions of performance, and this taxonomy has been instrumental in how researchers conceptualize job performance. The present study followed in the steps of these efforts in order to

identify a taxonomy of functional motives of environmentally sustainable workplace behavior. As with these other classification systems, this taxonomy provides a framework from which to understand and assess green motive performed in the workplace.

The present study identified 16 functions served by environmental behaviors, creating an empirically based taxonomy of green motives for use across cultures. This study took a functional approach in order to establish the taxonomy, resulting in the most comprehensive list of environmental motives identified by one study. Differences in the prevalence of various functional motives for green and ungreen behaviors were also found, highlighting the importance of not only understanding motives for green behavior, but also the barriers to green behaviors and motives for ungreen behaviors. Study 3 will work to develop a measure based on this taxonomy to be able to measure to assess the motives of individual employees at work. Directly assessing these motives can help identify the best green interventions given the unique composition of employee motives within a workplace. This taxonomy can aid researchers or practitioners to match green interventions or strategies to values and motives that are personally relevant to employees. Using this motivational approach to green behaviors furthers our understanding of the variety of motives employees have for engaging in green behaviors and how to increase the prevalence of green behaviors within organizations as the demand for sustainable workplaces grows.

Study 2: Sex Differences in Environmental Sustainability Knowledge, Motives, Attitudes, and Behaviors

It has been suggested that men and women differ in their environmental attitudes and behavior (Davidson & Freudenburg, 1996; Stern, Dietz, & Kalof, 1993; Zelezny, Chua, & Aldrich, 2000). There may also be sex differences in environmental motives. The present study will examine sex differences surrounding a variety of variables related to environmental sustainability. Meta-analysis will be used to examine sex differences in a wide range of determinants of green behavior, as well as the frequency with which green behaviors are performed from the environmental psychology literature. In particular, the focus will be on sex differences in eco-informational variables, motivation, motivationally-relevant variables, environmental attitudes, and pro-environmenal behavior. The specific determinants examined include environmental awareness and knowledge as informational variables, motivation, values, concern, commitment, behavioral intentions as motivationally-relevant variables, environmental attitudes, and pro-environmental behaviors.

Literature Review

There have been calls for an increased effort in recruiting and encouraging women across the globe to assume green leadership positions (e.g., "Wanted: Women leaders in going globally green," Johnson & Rogers, 2011), noting that society would benefit from women's talents and resources in transitioning to a low-carbon economy. The present study examines the strengths that women, as well as men, bring to the workplace with respect to sustainability. Organizations must understand how men and

women differ in terms of their environmental knowledge, motivation, values, attitudes about the environment, and engagement in pro-environmental behaviors in order to best support employee engagement in sustainability. This meta-analysis aims to determine the extent of sex differences in a wide range of environmental determinants and the implications of these differences for the workplace.

Theoretical Bases for Sex-based Differences in Green Behavior and its Determinants

Sex differences in environmental values, concern, and behavior may stem from broader psychological differences between the sexes, such as differences in personality. Biological models posit that such differences are innate, with contemporary research supporting a strong biological basis for personality differences (Bouchard & McGue, 2002). Other theories focus on how boys and girls are exposed to different experiences growing up based on their sex which influence their behavior. Gender socialization theories assert that women in most cultures are raised to be nurturing, cooperative, and warm in order to take on roles as mothers, where they are typically in charge of child-rearing, housework, and health-related issues. Concern for the natural environment may be an extension of women's traditional roles as caregivers. Men, on the other hand, learn to be competitive and independent, and are expected to assume roles in the public domain to provide financially for their families (Gilligan, 1982). Social role theories contend that children observe men and women in these different roles and strive to successfully fill these different familial and occupational roles (Eagly & Wood, 1991). These theories also posit that men are more likely to have a "marketplace mentality" which may lead them to focus on economic growth without regard to the environmental costs of their actions. Although

women's participation in the workforce has increased over time, they continue to be the primary homemakers and caregivers such that they are more likely to have to restrict their work by limiting their work hours or refusing to travel because of family obligations, while men largely do not have to place such restrictions on their work (Hochschild, 1989; Maume, 2006). Women are also less likely to be in positions of power in the workplace. For instance, Wolfers (2006) found that from 1992 to 2004, only 1.3 percent of publicly traded companies were led by female CEOs. Beutel and Marini (1995) found that female adolescents were less likely than males to value materialism and competition, and more likely to value compassion, which encompassed concern and responsibility for others' well-being. As a result of different societal roles or innate sex differences, or some combination of the two, men and women may value and interact with the natural environment differently.

Men and women also view risk differently, which may be an important factor in impacting one's concern about the environment and willingness to engage in green behaviors. Findings on sex differences and risk in general show that women are more concerned about risky actions or situations. A meta-analysis of literature on risk taking found women to be more risk averse than men for 14 of 16 types of risk (Byrnes, Miller, & Schafer, 1999). Women are also more likely to view the quality of the environment as connected to their personal well-being, the well-being of others, and the health of the planet (Stern, Dietz, & Kalof, 1993). Since women are more likely to focus on the health and welfare of the family, environmental threats may be especially concerning to women. Women have been found to be concerned than men when asked about environmental

issues associated with risk, such as toxic contamination and the effects of pollution on health and well-being (Blocker & Eckberg, 1997; Bord & O'Connor, 1997; Davidson & Freudenburg, 1996; Slovic, 1992; Solomon, Tomaskovic-Devey, & Risman, 1989).

Several researchers have noted a distinction between general environmental concern and more specific measures that gauge concern about particular issues such as toxic waste or pollution control (Davidson & Freudenburg, 1996; McStay & Dunlap, 1983; Mohai, 1992). Women tend to be more concerned about specific environmental issues, presumably because specific issues may pose a greater and more salient risk to health and safety than general environmental ones (Mohai, 1992). Results for general environmental concern are less consistent, and while some studies have found no relationship or that men are more concerned than women (Arcury, Scollay, & Johnson, 1987; Davidson & Freudenburg, 1996; McEvoy, 1972), the general trend when differences are observed is that women tend to be slightly more concerned than men (McStay & Dunlap, 1983; Stern et al., 1993). Davidson and Freudenburg reviewed 25 studies that used general attitude surveys and found that women were more concerned in 11 of these studies, while a majority of the 14 remaining studies found negligible differences in concern. McCright's (2010) analysis of 2001-2008 Gallup poll data showed that women were more likely to worry about climate change, which is consistent with previous findings (Brody, Zahran, Vedlitz, & Grover, 2008; O'Connor, Bord, & Fisher, 1999).

Another area in which men and women may vary is in terms of their environmental awareness and knowledge about environmental issues and facts. There are

sex differences in interests (Ceci, Williams, & Barnett, 2009; Su, Rounds, & Armstrong, 2009) that may affect men and women's knowledge about the natural environment. A meta-analysis of interests found that men are more interested in realistic and conventional vocations and in science, engineering, and mathematics careers (Su et al., 2009). Since men are typically more interested in these careers, it is likely that they will be more likely to pursue, and subsequently acquire, more knowledge about the environment. Several studies have found that men do display greater knowledge of environmental facts, information, and principles than women (Arcury, Scollay, & Johnson, 1987; Barrow & Morrisey, 1989; Digby, 2010; Schahn & Holzer, 1990). However, these differences may be changing over time as women become more involved in STEM fields, reaching beyond parity in terms of the percentage of degrees obtained at most degree levels, including bioscience (National Science Foundation, 2013).

Apart from theories about why women are more likely to care about the environment and be concerned about environmental risks, there has been little theorizing about sex differences in *motives* for green behavior. Relevant empirical and theoretical work suggests that sex differences in motives for and barriers to green and ungreen behaviors may exist (see Study 3, Sex and Motivation). However, given that only a few primary studies have been done on green motives and barriers, not all motive and barrier categories will be able to be examined in this meta-analysis. As such, this meta-analysis also includes a range of motivationally-relevant variables which include environmental values, concern, commitment, and behavioral intentions to begin to understand how men and women may have different reasons for engaging in green behaviors.

Past research has made a distinction between "private" and "public" behaviors, to distinguish between different types of pro-environmental behavior, such as recycling at home (private) or protesting environmental issues with others (public). Several studies have found sex differences within these categories, with women more likely to participate in a greater number of private behaviors than men, whereas men tend to perform public behaviors more often than women (McStay & Dunlap, 1983; Mohai, 1992). For example, women tend to be more likely to buy products because they believed them to be eco-friendly, recycle different types of materials (Mainieri, Barnett, Valdero, Unipan, & Oskamp, 1997), and reuse or mend things instead of discarding them (Ozanne, Humphrey, & Smith, 1999). Men, on the other hand, tend to be more likely to attend public meetings or hearings about the environment (Ozanne et al., 1999) and to vote for government policies addressing climate change (O'Connor et al., 1999). Other studies have reported no differences in the frequency of public behaviors (Tindall, Davies, & Mauboules, 2003). In a cross-national study, women were found to engage in more private green behaviors than men in all but three of 22 countries (Hunter, Hatch, & Johnson, 2004). In terms of public behavior, sizable differences existed for only six of the 22 countries; three of the six studies found that men engaged in more public green behaviors, while the other three found that women do so. Although women perform more green behaviors in private environments, men may be just as likely, if not more likely, to perform public pro-environmental behaviors. Examining sex differences by psychologically distinct categories of green behavior may lend clarity to the relationship between sex and green behavior. The behavioral categories of Conserving, Avoiding

Harm, and Responsible Product Choices include behaviors that tend to be more private in nature may tend to be more likely to be done by women more than men. The Taking Initiative and Influencing Others categories on the other hand are more likely to be public in nature so men may engage in these types of behavior more.

Previous Meta-Analyses of Sex-Environmental Criteria Relationships

While several qualitative reviews focusing on sex differences in environmental concern and behavior have been completed (Davidson & Freudenburg, 1996; Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003; Van Liere & Dunlap, 1980), only two meta-analyses have examined the degree of these sex differences (Hines, Hungerford, & Tomera, 1986-87; Zelezny, Chua, and Aldrich, 2000). The first meta-analysis, conducted by Hines et al., found a relationship of .075 between sex and environmental behavior based on four studies, with women more likely to engage in green behaviors than men. To update this meta-analysis, Zelezny et al. found 13 relevant studies conducted between 1988 and 1998 with an average sex-environmental behavior relationship in the same direction and similar magnitude as the previous meta-analysis (r = .10). Zelezny et al. (2000) also examined the relationship between environmental concern and sex and found that women reported significantly higher general environmental concern than men across six studies (r = .07). These findings appear to be robust across cultures. Zelezny et al. (2000) surveyed 1,871 undergraduates from 14 North American, Latin American, and European countries and found that females reported greater participation in pro-environmental behaviors than males in 11 of 14 of

these countries, with an overall correlation between sex and pro-environmental behavior of .09.

A meta-analysis of workplace studies conducted between 2008 and 2010 including 30,169 employees from seven of the world's ten GLOBE (cf. House, Hanges, Javidan, Dorfman, & Gupta, 2004) geographical clusters found that female *employees* engaged in more pro-environmental workplace behavior than men, although differences were small (d = .10, Klein, Ones, Dilchert, & Biga, 2011). Given the lack of research on the topic of sex differences in green behaviors at work, the Klein et al. (2011) meta-analysis was limited to studies conducted by the authors and sex differences in determinants of pro-environmental behavior could not be examined.

Contributions of the Present Meta-Analysis

Since meta-analyses to date have only examined sex differences in environmental concern and behavior, this study aims to examine sex differences in a wider range of variables, including motivation and motivationally-relevant variables. Research on the relationships between sex and other criteria have been examined in primary studies, but these studies have not been cumulated meta-analytically. As such, I aim to conduct a comprehensive meta-analysis of literature that examines the relationship between sex and informational variables (environmental awareness and knowledge), environmental sustainability motives, motivationally-relevant variables (environmental values, concern, commitment, and behavioral intentions), environmental attitudes, and pro-environmental behavior in an attempt to better understand the role of sex in various environmental sustainability determinants. Including a broader range of determinants can help in further

understanding why men and women engage in pro-environmental behavior. In addition, the previous meta-analyses included relatively few studies, particularly for the behavioral determinant of environmental concern, where only six studies were included in Zelezny et al.'s (2000) meta-analysis. Given that the non-workplace meta-analyses were last conducted well over a decade ago, there should be substantially more studies to include in a meta-analysis of these variables. The previous studies included few specifics about the methodology and the inclusion and exclusion criteria followed, so this study will also represent a more systematic attempt to identify study variables and communicate these criteria and analyses to the reader.

Lastly, due in part to the small number of studies that were available, the past meta-analyses did not include any breakdown by different types environmental criteria (e.g., concern or behavior). There are several distinctions made within the literature relevant to sex differences that could be incorporated into the meta-analysis. First, the taxonomy of motives created in Study 1 can be used to examine motivational variables. With respect to the motivationally-relevant variable of environmental concern, research suggests that sex differences in concern may be more pronounced when concern is related to specific environmental issues compared to concern for the environment more generally (Davidson & Freudenburg, 1996; Mohai, 1992). In addition, since previous meta-analyses have been published, an empirical taxonomy of green behavior has been developed by Ones and Dilchert (2009). There may be different patterns of sex differences across the psychologically distinct categories of behavior, such that women may be more likely to engage in certain categories, while men may be more likely to

engage in others. I will examine green behavior according to Ones and Dilchert's (2009) taxonomy so that the degree of sex differences for each fundamentally different type of behavior can be examined separately, including Avoiding Harm and Conserving (Reactive behaviors) and Influencing Others, Taking Initiative, and Working Sustainably (Proactive behaviors). The full list of environmental criteria included in this meta-analysis will be discussed below.

Pro-Environmental Variables for Meta-Analysis and Hypotheses

A list of the variables included in this meta-analysis can be found in Table 17, arranged according to Campbell et al.'s (1993) outline of the direct determinants of performance (declarative knowledge, procedural knowledge, and motivation), motivationally-relevant variables, and pro-environmental behavior. These variables are described below, with the hypothesized direction of sex differences based on past empirical and theoretical work outlined in Figure 13.

Informational Variables

Environmental awareness. Environmental awareness has been defined as "knowing the impact of human behavior on the environment" (Kollmus & Agyeman, 2002). For this meta-analysis, environmental awareness is defined as the extent to which individuals notice environmental problems and draw inferences about environmental conditions. In other words, awareness is the perception of environmental problems and consequences.

Environmental knowledge. Environmental knowledge is defined as the amount of acquired facts, information, and principles that individuals have learned about

environmental sustainability. Studies of environmental knowledge have primarily focused on factual or conceptual issues related to the environment (i.e., pollution, energy, and climate change), and as such serve as measures of declarative rather than procedural knowledge.

Motivation

Workplace motivation is defined as the psychological processes that determine the direction, intensity, and persistence of work behavior (Kanfer, Chen, & Pritchard, 2008). Environmental motivation can be thought of as the processes that initiate, direct, and sustain pro-environmental behavior. Study 1 described a motivation taxonomy that was developed specifically for measuring motivation of employees performing green behaviors at work (Klein et al., 2010). However, research on motivation for green behavior has been sparse, especially in terms of demographic differences in motivation. Motives that have examined in the literature include social responsibility, or one's sense of responsibility to help society at large. Self-efficacy motives are individuals' beliefs in their ability to effectively perform green behaviors. Related to self-efficacy is knowledge-based efficacy, or the belief that one has the knowledge to effectively perform green behaviors. Individuals have been asked about the extent to which they are motivated by social norms, or the extent to which pressure from societal or group culture guides green behavior. Lastly, the literature also includes items about expectancy, or the perceived likelihood that performing certain behaviors will lead to desired outcomes.

Motivationally-relevant Variables

Environmental values. Values have been conceptualized as guiding principles in a person's life, influencing how individuals define desirable actions and outcomes and make important life decisions (Rokeach, 1973; Schwartz & Bilsky, 1987). Values provide a basis for the formation of attitudes and serve as guidelines for behavior. Environmental values encompass individuals' appreciation for the natural environment, with the environment being viewed as having utility or merit. Mayer and Frantz (2004) found that women valued the environment to a greater extent and felt more connected to it than men across three different samples, with correlation coefficients ranging from .10 to .36. A cross-cultural study of 2,160 participants from 14 countries from Europe, Latin America, and North America found a small relationship between sex and eco-centric values (r = .10; Zelezny, Chua, & Aldrich, 2000). Given the sex differences that have been found in environmental values, I expect that women will be more likely to value the environment across studies. Individuals who value the environment should be drawn to green positions or tasks at work where they can contribute to protecting and improving the environment.

Environmental concern. Environmental concern is a set of beliefs about nature and one's relationship to it, including considerations of the seriousness and importance of environmental problems (Dunlap, Van Liere, Mertig, & Jones, 2000; Takács-Sánta, 2007). Items that assess environmental concern typically measure one's concern about the environment in general or concern about a specific environmental issue, such as pollution, acid rain, or a local environmental issue. Findings suggest that women tend to be more concerned about specific environmental issues given that specific issues pose a

more direct threat to health and safety than environmental issues in a general sense (Mohai, 1992). This meta-analysis aims to determine the magnitude of sex differences in terms of both general and specific environmental concern.

Environmental commitment. Environmental commitment is defined as how committed individuals are to the environment in terms of how willing they are to personally pay or expend effort for particular environmental causes or outcomes. For example, commitment items ask participants to indicate their willingness to pay more for environmental products or services. Individuals who value the environment and hold pro-environmental attitudes should also be more willing to commit to environmental action. Interestingly, Andreoni and Vesterlund (2001) found that women were more altruistic when the monetary costs of helping were greater, whereas men were more altruistic when the costs were small. Across studies I would expect women to be more committed to the environment in terms of their willingness to pay more to protect the environment.

Behavioral intentions. Behavioral intentions are an individual's self-reported willingness to engage in green behavior. Researchers have argued that behavioral intentions are the most direct and immediate antecedents of behavior (Fishbein & Ajzen, 1975; Triandis, 1977), although the correlation is not perfect given that performance of the behavior may be affected by situational factors, such as opportunities to perform the behavior, and other factors. A meta-analysis examining intentions to engage in pro-environmental behaviors found that intentions correlate with behavior measures .52 (Bamburg & Möser, 2007). As such, behavioral intentions will be examined separately from measures of green behavior.

Environmental attitudes toward specific issues and behaviors

Environmental attitudes are individuals' positive or negative evaluations of specific environmental issues or behaviors (Eagly & Chaiken, 1993). For instance, individuals are asked to report on their specific attitudes toward recycling, environmental regulation, or alternative energy development. Individuals who value the environment may also be more favorable toward specific environmental behaviors, because they are more likely to see the need for pro-environmental behaviors. Findings with respect to sex differences in specific environmental attitudes have been inconsistent. Eisler, Eisler, and Yoshida (2003) found that women had more pro-environmental attitudes toward issues such as preserving nature and providing more ecological education in schools. In another study, men thought it was slightly more important to allocate funds to clean up streams and rivers and to allocate land and water for recreation and protection of fish and wildlife than women (Mohai, 1992).

Pro-environmental behavior

The Ones and Dilchert (2009) Green Five taxonomy will be used to classify studies that measure green behavior, and includes five dimensions across two factors: Reactive behaviors (Conserving and Avoiding Harm) and Proactive behaviors (Working Sustainably, Influencing Others, and Taking Initiative). Although the taxonomy was developed using employee reports of green and ungreen workplace behaviors, it also functions as a framework for examining pro-environmental behaviors in general. The Conserving dimension of behavior is comprised of what is traditionally thought of as the 3Rs: reducing use, reusing, and recycling, as well as a fourth subfacet of repurposing.

This category directly translates to general environmental behavior, as reducing, reusing, recycling, and repurposing are performed both in and outside of the workplace. Another dimension of behavior is Avoiding Harm, which encompasses subfacets of preventing pollution, monitoring environmental impact, and strengthening ecosystems. Working Sustainably includes subfacets of changing how work is done, creating sustainable products and processes, embracing innovations for sustainability, and responsible product choices. Similarly, in non-work settings, this category can include purchasing, creating, or using sustainable products and processes. However, items from measures in the research literature focus on behaviors related to making responsible product choices. As such, given the studies included in the meta-analysis, the Working Sustainably category is renamed Responsible Product and Process Choices. The dimension of Influencing Others encompasses encouraging and supporting others and educating and training oneself and others for sustainability. The fifth facet is Taking Initiative which included the subfacets of lobbying and activism, putting environmental interests first, and initiating or implementing programs and policies related to sustainability.

Method

Meta-Analytic Database

A thorough literature search was conducted to locate articles published between 1970 and May 2013 which examine sex differences in relation to the environmental criteria of interest. All of the participants had to age 14 or older, given that 14 is the legal age of employment for a majority of the United States (U.S. Department of Labor, 2010) and I aimed to draw conclusions with respect to the working age population.

Studies were located by a systematic search of nine journals related to the environment, business/economics, and psychology, and included: *Academy of Management Journal*, *Environment*, *Environment and Behavior*, *Harvard Business Review*, *Journal of Applied Psychology*, *Journal of Applied Social Psychology*, *Journal of Environmental Psychology*, *Journal of Environmental Education*, and *Population and Environment*. Additional studies referenced by the articles in these journals were also reviewed and included in the database if they reported data on sex and any of the criteria of interest (i.e., snowballing). References from previous qualitative reviews (Davidson & Freudenburg, 1996; Diamantopoulos, Schlegelmilch, Sinkovics & Bohlen, 2003; Van Liere & Dunlap, 1980) and quantitative meta-analyses of sex differences and environmental criteria (Hines, Hungerford, & Tomera, 1986-87; Zelezny, Chua, & Aldrich, 2000) were also obtained.

Two exclusion criteria were set prior to the meta-analysis. First, articles that failed to report effect sizes or data that could be converted to standardized mean difference scores (*d* values) for meta-analyzing were excluded. Second, studies that did not report the sex composition of the sample (number or percentage of men and/or women in the sample) and that did not report a statistic utilizing sex group size were excluded.

Overall, 272 articles for possible inclusion in the database were located. Of these, 76 studies (96 unique samples) were found that examined at least one of these variables with enough information to compute an effect size. Average effect sizes were computed for each category: informational variables (environmental awareness and knowledge), motivation, motivationally-relevant variables (environmental values, concern,

commitment, and intentions), attitudes, and behavior. Items examining motives were classified according to the motives and barriers taxonomy in Study 1. Articles examining sex differences in green household behaviors were classified according to the Ones and Dilchert (2009; 2010) taxonomy. Items that focused solely on one category of behavior were classified as representing one category of behavior (Working Sustainably, Avoiding Harm, Conserving, Influencing Others, or Taking Initiative). Items measuring green behavior in general or scales that examined more than one facet of the Green Five and only reported an average or composite of items were included in a General Behavior category. A list of all of the sources contributing to the meta-analysis, as well as the variable(s) examined by each, are provided in Appendices A and B, respectively.

These primary studies were supplemented with unpublished data from three large-scale, publically available datasets. These included items from the World Values Survey Association's World Values Survey conducted between 1981-2008 (World Values Survey Association, 2009), the National Opinion Research Center's 2010 International Social Survey Programme (Leibniz Institute for the Social Sciences, 2010), and student data from the Organization for Economic Co-Operation and Development's 2006 Programme for International Student Assessment (Organization for Economic Co-Operation and Development, 2006). The ISSP dataset contained five items assessing barriers to pro-environmental behavior, which were summed to create a barriers scale (alpha = .68).

The *d* values were corrected for sampling error and unreliability in the environmental sustainability variables according to Hunter and Schmidt's (2004)

psychometric meta-analytic procedures where possible. Correcting for attenuation due to measurement error was done by constructing a distribution of reliability coefficients reported in the primary studies (measurements of unreliability for single items are not possible so are not included, along with studies where reliabilities are not reported). A summary of the reliability distributions can be found in Table 18. Exploratory follow-up analyses were also conducted when effect sizes were associated with sizable variability in order to examine potential moderators that might account for some of the variation. Analysis by study year (studies conducted before 1995 compared to 1995 and later) and samples within Anglo countries (Anglo GLOBE cultural region; House, Hanges, Javidan, Dorfman, & Gupta, 2004) were most frequently examined.

Results

Table 19 displays the results for the meta-analyses examining the relationship between sex and each environmental sustainability variable.

Informational variables

Men reported a greater awareness of environmental issues, but this effect was negligible ($d_{corrected}$ = -.10, $SD_{corrected}$ = .18) and did not generalize across samples. Given the large standard deviation associated with the effect size, exploratory follow-up analyses were performed to examine potential sources of variability. Ninety out of the 93 studies contributing to this meta-analysis were from the large-scale unpublished datasets (ISSP 2010 and PISA 2006), so year was an unlikely moderator. Given that these datasets were comprised of data from multiple countries, culture was examined as a potential moderator by restricting the samples to Anglo countries represented in this sample.

Variance was moderately reduced, while the interpretation of the effect size remained the same (not generalizable; $d_{corrected}$ = -.17, $SD_{corrected}$ = .12, k = 9, N = 59,036).

Of the 24 studies measuring environmental knowledge, all but two assessed acquired knowledge of environmental issues and processes (two studies reported on individual's self-perceived environmental knowledge). Men did demonstrate higher levels of environmental knowledge ($d_{corrected}$ = -.40, k = 24, N = 12,241). This effect size indicates that on average men scored .40 standard deviation units higher on measures of environmental knowledge. The 90% credibility interval ranges from -.77 to -.02, indicating that these findings generalize across settings. Since the standard deviation around the corrected *d* value was sizeable (.23) and the amount of variance accounted for relatively low (17.42%), the year the study was conducted was examined as a moderator of this relationship. The samples were split into those with data collected before 1995 and those with data collected in 1995 or later. When examined over time, the effect is stronger prior to 1995 ($d_{corrected}$ = -.50, $SD_{corrected}$ = .18) compared to 1995 and later ($d_{corrected}$ = -.32, $SD_{corrected}$ = .22). The effect no longer generalizes when examining data collected 1995 and later. However, this could be due to second order sampling error given the fewer studies contributing to each moderator subclustering.

Motivation

Few of these studies examined differences in environmental motives, however studies that were conducted or that included items about motives were meta-analyzed. Women were more likely to cite social responsibility as a motive of pro-environmental behavior ($d_{corrected}$ = .15, k = 2, N = 977). Women were also more likely to cite cultural

norms than men ($d_{corrected}$ = .45, k = 2, N = 504). Women reported higher levels of self-efficacy ($d_{corrected}$ = .29, k = 4, N = 1,478), as well as expectancy ($d_{corrected}$ = .27, k = 3, N = 1,046). The 90% credibility intervals for all of these effects were suggestive of generalizability with the exception of expectancy. However, the small number of studies contributing to each meta-analysis limits conclusions about generalizability.

In terms of barriers, the difference in terms of financial/cost considerations was negligible ($d_{corrected}$ = .03). Women also indicated a lack of knowledge as a barrier to involvement with the environment ($d_{corrected}$ = .20), although this was based on only one study (N = 2,922). As such, more studies would be needed to examine the generalizability of the effect. Lastly, men cited barriers to pro-environmental behavior ($d_{corrected}$ = -.15) more frequently than women, although this effect was small and did not generalize.

Motivationally-relevant variables

Sex differences in terms of valuing, or appreciating, the natural environment were negligible ($d_{corrected}$ = .05, $SD_{corrected}$ = .11, k = 72, N = 80,440). As expected, women are more concerned about specific environmental issues ($d_{corrected}$ = .23, $SD_{corrected}$ = .14, k = 56, N = 61,723) and the effect generalizes across settings. Women were also more concerned about the environment in general ($d_{corrected}$ = .17, $SD_{corrected}$ = .16), but the size of the effect was smaller than that observed for specific concern and did not generalize across settings. The year the study was conducted (prior to 1995 and 1995 and later) did not moderate the effect. In addition, examination of the Anglo subcluster did not serve to reduce variability, but rather variability increased to a small extent ($d_{corrected}$ = .25, $SD_{corrected}$ = .21, k = 32, N = 20,118).

The largest category represented in this study was environmental commitment through a willingness to pay or expend effort. Sex differences in commitment to the environment were negligible ($d_{corrected}$ = -.04, k = 244, N = 609,793). Given the effect size had a relatively large corrected standard deviation (.16), the year of the study was examined as a moderator, but did not moderate the effect. Restricting the sample to Anglo countries represented in the database was able to reduce some of the variability ($d_{corrected}$ = .05, $SD_{corrected}$ = .07, k = 22, N =76,980).

Women were more likely to indicate pro-environmental intentions ($d_{corrected}$ = .17), however this was based on a small number of studies (k = 4, N = 566) and the standard deviation associated with the corrected d value (.25) precluded generalizability.

Attitudes

Specific environmental attitudes were also examined with respect to sex. Across 89 studies and 406,066 individuals, a corrected average effect size of .19 was obtained ($SD_{corrected}$ = .14), indicating that women held slightly more pro-environmental attitudes although this effect is not consistent and reliable across settings. While there was an equal amount of variability within the Anglo region, the effect was generalizable across Anglo countries examined ($d_{corrected}$ = .26, $SD_{corrected}$ = .13, k = 14, N = 66,506, 90% credibility interval = .05 to .81) although this could be due to second order sampling error given the smaller number of studies. Analysis by when the study was conducted did not lead to a meaningful reduction in variation.

Behavior

Lastly, studies examining sex differences and self-reported pro-environmental behaviors were meta-analyzed. Women were somewhat more likely to engage in green behavior in general (d_{obs} = .23, $d_{corrected}$ = .27, k = 24, N = 13,752). Since the standard deviation around the corrected d value was sizeable (.24) and the credibility interval includes zero (-.13 to .67), this finding does not generalize across settings. Given the wide range of behaviors included under this category, this variability was not surprising and was why separate meta-analyses on each type of Green Five behavior were originally planned. By examining studies that measured Green Five behaviors separately, the variability associated with the corrected effect sizes was lower, with standard deviations ranging from .07 to .17 across the five types of behavior.

In terms of specific Green Five behaviors, women were more likely to engage in Avoiding Harm behaviors (d_{obs} = .13, $d_{corrected}$ = .13, k = 36, N = 34,277), with the effect generalizing across settings (credibility interval = .01 to .24). Women were also somewhat more likely than men to engage in behaviors related to Conserving ($d_{corrected}$ = .19, $d_{corrected}$ = .17, k = 95, N = 105,868) and Responsible Product Choices ($d_{corrected}$ = .21, $d_{corrected}$ = .14, k = 42, N = 45,985), however these findings did not generalize. Given the years of data collection for the studies contributing to the meta-analysis on Conserving behavior, study year was best examined by studies conducted prior to 2000 and 2000 and later. This analysis was not associated with a meaningful reduction in variance. Interestingly, the effect size in Anglo countries was associated with greater variance (d_{obs} = .31, $d_{corrected}$ = .24, k = 16, N = 13,948), while the effect was associated with less

variation and generalized when restricted to US samples only (d_{obs} = .16, $d_{corrected}$ = .05, k = 8, N = 5,293), however this was based on a small number of studies.

While men were slightly more likely to engage in behaviors related to Taking Initiative and Influencing Others, these effect sizes were negligible. Given the variability associated with Taking Initiative behaviors ($d_{corrected}$ = .16), several moderators were examined. Again, there were too few studies conducted prior to 1995 for a meaningful analysis, so data collected prior to 2000 was compared to 2000 and later. There was no effect in terms of substantive conclusion or reduction in amount of variability for prior to 2000 (d_{obs} = -.03, $d_{corrected}$ = .13, k = 65, N = 73,528) compared to 2000 and later (d_{obs} = .00, $d_{corrected}$ = .19, k = 38, N = 47,219). Restricting the analysis to Anglo clusters resulted in greater observed variance ($d_{corrected}$ = .28).

Discussion

This meta-analysis provides a quantitative summary of over 40 years of data on sex differences in a wide range of environmental criteria, including data from several large-scale datasets. By performing the meta-analyses, I examined the direction and magnitude of differences in environmental sustainability variables, including informational and motivational variables. This study improved upon past meta-analyses by including a wider range of environmental criteria, including studies completed since the last meta-analysis on behavior and concern, examining criteria by theoretical or empirical distinctions (i.e., general versus specific concern, Green Five taxonomy) and by supplementing published studies with data from several large, publically available datasets. These findings can be interpreted from an industrial/organizational psychology

lens with respect to the implications for sustainability within workplace settings. For instance, examining employee green behavior in terms of direct determinants of knowledge and motivation is a useful distinction in this domain. Given the differences found in this meta-analysis, more studies may want to include gender as a potential moderator of training effects targeting these variables. While environmental sustainability has long been examined from the perspective of individuals' behavior in their home environments, research within workplace settings has been relatively neglected until recently. As such, a quantitative summary of findings from sex differences in predominantly non-workplace settings informs how sex plays a role in sustainability at home as well as how it may impact workplace settings. How these findings can be interpreted within workplace settings are discussed in detail in the implications section below.

The findings of this meta-analysis indicate that on average men tend to have greater declarative knowledge about environmental sustainability than women. This difference seems to be changing with time, likely due in part to women being more likely to pursue science education and careers than in the past (National Science Foundation, 2013). The magnitude of the knowledge difference is consistent with tests of knowledge in other domains where women tend to score lower than men on many knowledge tests, not just those related to math and science (i.e., Advanced Placement tests with the exception of English and foreign language exams; Ackerman, Bowen, Beier, & Kanfer, 2001).

Although it would be interesting to also examine time period as a moderator of the relationship between sex and awareness, the majority of the samples examining awareness were conducted more recently. Similar to knowledge, the sex difference in awareness may have been larger in the past, however this relationship was unable to be examined given the data available. Another potential moderator that was unable to be examined in this meta-analysis was awareness of specific versus general issues. Given that this meta-analysis found women are more concerned about specific environmental issues, there may be a smaller gender gap for awareness of specific issues if women are more likely to seek out and be informed about them. Items in the two large-scale databases asked about awareness in terms of specific issues so no comparison could be made to awareness of environmental issues more broadly.

Overall, there were not many studies that examined sex differences in environmental motives and barriers, and less than half of the categories identified in Study 1 were represented. In terms of the environmentally sustainable motive and barrier categories for which data were available, the largest observed sex difference was for social norms, indicating that women are more likely to act on normative information about engaging in eco-friendly behavior than men. This may in part reflect women's greater tendencies toward the personality subfacet of compliance (Costa et al., 2001). Women were also more likely to endorse social responsibility as a motive for green behavior, indicating that they value helping future generations. This is not surprising given women's tendencies to be more likely to consider and be concerned about future generations than men (Lindsay & Srathman, 1997).

Consistent with the findings about sex differences in environmental knowledge, women were more likely to indicate a lack of knowledge as a barrier to involvement with the environment, although there was only one study examining sex differences in this motivational variable. However, women were also more likely to report greater self-efficacy with respect to engaging in pro-environmental behaviors. These seemingly discrepant findings may indicate that while women have less environmental knowledge, they still feel adequately prepared to contribute to the environmental sustainability in a number of more common ways (i.e., recycling). A majority of the studies on self-efficacy focused on recycling or individuals' confidence about doing "simple things" that could have meaningful effects on the environment. This is similar to the literature on pro-environmental behavior more broadly, which tends to focus on recycling (Lehman & Geller, 2004).There may have been a smaller sex difference in self-efficacy had the items focused more on one's ability to engage in green behaviors that are either more difficult or that require more advanced training. Examining sex differences in self-efficacy with respect to more difficult behaviors is an important question for future research.

Somewhat surprisingly, sex differences in financial/cost considerations were negligible. However, the samples contributing data to the meta-analysis were all based on the same single item measure about doing what is right for the environment even when it costs more. Although men tended to report more barriers to pro-environmental behaviors, this effect was not generalizable, indicating no reliable difference in the frequency with which men and women cited barriers to green behavior. The barriers scale may have been

associated with substantial variability given the open-ended nature of the items and that they were not linked to any specific types of behavior.

Given the lack of research on sex differences in motives and barriers, findings from motivationally-relevant variables may help fill in the some of the gaps in understanding sex differences in motivation. While on the whole there are no sex differences in terms of the extent to which men and women value the environment, women are more concerned about specific environmental issues. This is consistent with past findings, where Zelezny et al. (2000) found correlation of .07 between sex and general environmental concern. By looking separately at specific environmental concern, a stronger effect size was observed ($d_{corrected}$ = .23, equivalent to an *r* of .11) and is meaningful and reliable across settings. These meta-analytic findings are consistent with past work suggesting that women are more likely to be concerned about specific environmental issues compared to being concerned about the environment in general (Davidson & Freudenburg, 1996; McStay & Dunlap, 1983; Mohai, 1992).

Women's greater levels of concern do not necessarily translate into greater pro-environmental commitment, intentions, or attitudes. Sex differences in terms of commitment are negligible, and while women were more likely to have pro-environmental intentions and attitudes, the effects did not generalize. This could be due in part to the broad range of pro-environmental behaviors that one may form attitudes about or intend to do. When examined by region, the effect for attitudes did generalize when examined within the Anglo region. While this could be due to sampling error given the smaller number of studies in the meta-analysis, it may also be that women in these

regions are more likely to believe that the environment should be a priority. A pervious meta-analysis of employee green behavior at work (Klein, Ones, Dilchert, & Biga, 2011) found that one of the greatest predictors of cross-cultural variation in EGB was GDP and GNI per capita, suggesting that the environment becomes more of a priority for women in countries where the economy is stable and basic needs are already met.

In terms of actual performance of general pro-environmental behavior, women were more likely to engage in green behaviors, however these differences were not generalizable. Given the findings observed for some specific types of pro-environmental behavior, it is likely that being able to examine these by type of behavior would reduce variability. The overall effect size found in this meta-analysis for sex differences in the performance of general green behaviors ($d_{corrected}$ = .27) is equivalent to an *r* of .13. This is somewhat larger than previous meta-analyses (*r*s = .075, .11; Hines et al., 1986-87; Zelezny et al., 2000). The effect size is also larger than that found in workplace settings ($d_{corrected}$ = .10, Klein et al., 2011), which may reflect workplace requirements or constraints, such as company policies and procedures that limit the amount of control individuals have over their behavior at work. In addition, since women are less likely to be in positions of power within the workplace (Bowler, 1999; Wolfers, 2006), they may have less autonomy to engage in green behaviors and shape policies and procedures about these behaviors. However, the overall conclusion of both meta-analyses is the same; that there is not a meaningful and reliable sex difference in general pro-environmental behaviors and employee green behaviors performed at work.

An analysis of pro-environmental behaviors by the Green Five behavioral taxonomy (Ones & Dilchert, 2009; 2010) revealed that women were consistently more likely than men to engage in behaviors related to avoiding environmental harm. This is could be due to women's greater levels of environmental concern about specific environmental problems. If women are more concerned about specific environmental issues and how they may affect the health and well-being of the environment and their families, it is not surprising that they would go out of their way to purposely avoid or inhibit behaviors known to cause environmental damage or degradation. Women were also more likely to make responsible product choices and engage in conserving behaviors more often, although these differences vary by the setting and are influenced by situational contexts, and therefore do not generalize across settings. Within the US, however, the effect is generalizable for sex differences in Conserving behaviors, although this was based on a small number of studies (N = 8), which could be a function of availability of recycling within home environments in the US.

Men were more likely to influence others and take initiative with respect to the environment, although these differences were negligible. Women may be less likely to educate and train others about environmental sustainability compared to other behaviors given that they have accumulated less knowledge about the environment than men on average. Although a larger difference was expected for taking initiative behaviors since they included many public behaviors, findings with respect to sex differences in public behaviors have been mixed (Hunter et al., 2004; McStay & Dunlap, 1983; Mohai, 1992; Tindall et al., 2003). It is encouraging that on the whole, both women and men equally

engage in taking initiative behaviors. There may still be differences in how the behaviors are manifested across sex (i.e., men may be more likely to influence others as leaders in the community or at work, whereas women might do so by encouraging and supporting others at a more personal level), however differences at the overall green five level were small.

Implications for the Workplace

As the green economy grows, there has been an interest in how women can take advantage of opportunities in this sector and how it may offer women jobs in more traditionally male roles (Johnson & Rogers, 2011; U.S. Department of Labor, n.d.). Being aware of sex differences in knowledge, motivation, motivationally-relevant variables, attitudes, and behavior can be useful in understanding how men and women can contribute to organizations' environmental efforts and how green initiatives and interventions may be perceived differently by men and women. Men and women appear to place equal value on, and have a similar level of commitment to, the environment. From an organizational standpoint, having male and female employees who are equally committed to the environment is positive in terms of having employees contribute to environmental sustainability goals.

One of the largest and most reliable effects observed in this study was the sex difference in environmental knowledge, although the difference seems to have diminished over time. In addition, women are more likely to cite a lack of knowledge as a barrier to pro-environmental behavior. Women may have less information and/or more misconceptions about the environment compared to men. The gender gap in

environmental knowledge highlights the importance of organizations taking a multi-level approach to environmental sustainability, including involvement at the social-cultural level by participating in activities to increase environmental literacy (Starik & Rands, 1995). Within organizations, leaders of environmental programs and other initiatives should be aware that men and women may bring different levels of knowledge about environmental sustainability and may need different levels of support in working toward sustainable outcomes. At the same time, the studies included in this meta-analysis focused on declarative knowledge, and less is known about procedural knowledge, although a similar trend in sex differences might be expected. However, some have argued that new green industries and technologies open up jobs that are less likely to require past direct experience, and may be particularly good opportunities for women to get into more traditionally male domains (Norquist, 2010; U.S. Department of Labor, n.d.). The U.S. Department of Labor (n.d.) offers an online guide and web-based training for women looking to enter green careers, which informs women about these opportunities, including how they can gain more relevant knowledge and experience in these areas.

When recruiting women for green jobs, it may be beneficial to highlight the positive impact the job can have on future generations, as well as to provide information about employees who work in similar positions. Normative interventions are an effective way of increasing pro-environmental behavior (Goldstein, Cialdini, & Griskevicius; Osbaldiston & Schott, 2011). Establishing norms for green behavior, providing normative information, or encouraging others to join fellow coworkers should be an effective ways

of increasing green behaviors, and may be especially helpful for influencing green behavior of female employees. When recruiting women for green jobs, it may be beneficial to highlight sustainable work of other employees and the positive impact on future generations.

Two other meaningful and reliable sex differences were that women are more concerned about specific environmental issues and are more likely to engage in avoiding harm behaviors. Given their greater levels of concern, women may be particularly attuned to environmental impacts and try to avoid or inhibit behaviors that harm the environment. Within the workplace, women may be more likely to avoid or offset business activities that harm the environment. Female employees may be particularly interested in job tasks or roles that focus on avoiding pollution and mitigating environmental impacts.

As organizations increasingly look to employees to work toward environmental solutions, it is important that women contribute to these efforts so that organizations can take advantage of their unique perspectives and experiences, particularly with respect to their greater concern about specific environmental issues and tendencies to avoid behaviors that harm the environment. Given their greater engagement in avoiding harm behaviors and focus on motives related to social responsibility, social norms, and self-efficacy, women may also inspire colleagues to focus on similar aspects of sustainability and engage in more green behaviors, similar to how work units with a greater percentage of women displayed higher charitable giving (Leslie et al., 2013). Organizations can support women by ensuring that they are included in training opportunities related to

roles in environmental sustainability and fostering environmental leadership opportunities.

Limitations, Strengths, and Future Directions

One limitation of this meta-analysis is that these relationships may look different in the workplace compared to household settings. Only one study in this meta-analysis included an item about recycling in the workplace (Tindall et al., 2003). Given the lack of research conducted in workplace settings (with the exception of the Klein et al. (2011) meta-analysis), these relationships were impossible to examine separately. While sex differences in informational variables (i.e., awareness, knowledge) and more distal motivationally-relevant variables (i.e., values, concern) may remain more constant across settings, motives for engaging in green behavior and performance of green behavior could be more likely to be affected by the context. In addition, there are several motive categories that emerged in Study 1 that are unique to or more common within the workplace, such as motives of public relations and requirement. Individuals should have more freedom in their personal lives to gravitate toward behaviors that align with their values, attitudes, and personal preferences than within the workplace. In addition, green behaviors can be a part of assigned duties or may be required within the workplace (Ones & Dilchert, 2012). This would serve to reduce sex differences in the performance of green behaviors at work, unless the job requirements or duties vary by sex. However, as discussed earlier, employees report that about 70% of work behaviors are not required, suggesting that employees do a majority of these behaviors voluntarily at work. As such, cumulating the vast literature on environmental criteria in predominantly non-workplace

settings can contribute to beginning to understand motivation for pro-environmental behavior at work. Overall, this study offers insight into the environmental knowledge, motivation, motivationally-relevant attitudes, and behavioral tendencies that employees bring with them to the workplace.

A common concern with meta-analyses is what is termed the file drawer problem (Rosenthal, 1979), where studies with null findings may be more likely to go unpublished. However, several factors made this less of a concern in this meta-analysis. First, many of the studies contributing to this meta-analysis examined multiple demographic variables in relation to sustainability criteria. The authors of these studies often reported on findings from all predictors, even if the size of these effects did not reach statistical significance. As such, many non-significant findings were included in the meta-analysis. In addition, several large publically available datasets with environmental items were identified and analyzed by sex, contributing data to most of the environmental criteria that were examined. Given these features of the contributing studies and efforts to include data from large-scale databases, meta-analytic estimates in this study should reflect accurate estimates of the true relationship between sex and environmental sustainability criteria.

One limitation of this meta-analysis was that some environmental criteria have not been examined as extensively as others in primary studies and unpublished datasets. While the number of participants for some of the individual meta-analyses included hundreds of thousands of individuals (i.e., N = 609,793 for environmental commitment), some of the meta-analyses for other criteria only included a few studies with smaller

sample sizes (i.e., $k = 2$, $N = 504$ for social norms). Even criteria with a large number of samples were sometimes limited to only a single item measuring that construct. In some cases the lack of studies on a variable precluded conclusions about generalizability (i.e., lack of knowledge, $k = 1$).

Environmental motivation was by far the smallest category in terms of the number of studies that were found examining sex differences in these motives. Four out of the six meta-analyses included fewer than five samples contributing data to the meta-analysis. Given the small number of studies contributing to some of these meta-analyses, initial conclusions about sex differences in motives are tentative. Despite the use of motives in understanding other domains of behavior such as organizational citizenship behaviors (Rioux & Penner, 2001) and volunteering (Clary et al., 1998) and the importance of understanding motivation of green behavior, there is a limited amount of research on motives of pro-environmental behavior in general. Not only were few studies available, but they also covered a limited range of motive categories. The lack of available data highlights the need for more research on sex differences in pro-environmental motives and barriers. The motives taxonomy constructed in Study 1 is useful for guiding measurement in this respect, as it provides a comprehensive list of motives and barriers to aid in more systematic measurement of each category. The examination of sex differences in motives in Study 3 is a step forward in expanding our knowledge in this area.

Although the data on green behavior may appear more robust on the whole compared to some other variables, this is mostly due to the large databases that included

multiple samples. Only four studies examined sex differences in tendencies to influence others. Outside of a single item measuring the Avoiding Harm dimension from the International Social Survey Programme across multiple samples, only two primary studies examined the Avoiding Harm dimension of green behavior.

Not only were the meta-analyses limited by the number of studies on each environmental variable, but they were also somewhat limited in scope in terms of how each variable was conceptualized and measured. In terms of environmental knowledge, the studies identified for inclusion were primarily focused on measuring declarative knowledge, while procedural knowledge and skill would also be important and interesting to examine. Recycling has been the subject of many articles on green behavior (Lehman & Geller, 2004), and many of the primary studies included in this meta-analysis had a similar focus. Apart from one study that included items measuring reusing and energy conservation (Tindall et al., 2003), all of the 11 primary studies that fall under the Conserving category examined sex differences in recycling. Fortunately, the two large unpublished datasets that had items related to conserving included a greater range of behaviors that included reducing and reusing. Most measures of Taking Initiative behaviors that examined sex differences were related to lobbying and activism (i.e., involvement in political or environmental organizations, or writing a letter about an environmental issue).

The three publically-available datasets provided data that supplemented the items from primary studies. However, even with the large-scale datasets, data contributing to any one category were often limited to responses on the same single item across samples.

Moderator analyses were also limited by the data available. While moderator analyses were warranted for several variables, a small number of studies contributing to some of the meta-analyses precluded a moderator analysis (i.e., barriers scale, knowledge after 1995, and general behavior). In addition, given the small number of primary studies and the fact that each large scale database usually contributed only included one sample each country, cross-cultural meta-analyses were also limited in scope and were initially conducted on the Anglo cluster (often times there were only a few studies from the US precluding meaningful US analysis or more extensive analysis across cultures).

This meta-analysis determined the direction and magnitude of sex differences in a broad range of environmental criteria, many of which were previously unexamined meta-analytically. Compiling the studies also highlights some of the areas in which more research on sex and environmental sustainability is needed, and may even reflect trends in the environmental sustainability literature more broadly. More studies examining sex differences in different types of pro-environmental behavior, particularly the Green Five categories of Influencing Others and Avoiding Harm, would be useful in better understanding sex differences in behaviors. Being able to examine declarative knowledge and skill separately from procedural knowledge and skill would also be beneficial. Most notably, more research is needed on sex differences in motives for and barriers to pro-environmental behavior. There have been very few studies examining this topic despite initial theoretical and empirical work suggesting there may be differences, making this an important direction for future research. Examining sex differences in *workplace* settings is also important, given some of the unique workplace motives and the important

differences between household and workplace contexts which may affect the extent to which employees cite different motives. Some particularly interesting questions to examine include whether there are differences in the extent to which men and women are motivated by public relations and requirements. As such, a portion of Study 3 examines sex differences in environmental sustainability motives for employee green behavior.

Study 3: Measuring Environmental Sustainability Motives and their Nomological Network

In Study 3, a series of research questions about motives for green behavior are examined. First, a scale based upon the motive taxonomy established in Study 1 is constructed in order to assess employee motives for sustainable behavior. That is, in Study 3, the goal was to construct the Environmental Sustainability Motives Scale (ESMS) based on categories identified in Study 1. Investigations then focus on the underlying factor structure of environmental sustainability motives as well as their nomological networks. The latter investigations will include an examination of sex differences in motives, as well as relationships between motives and the Big Five personality dimensions and green behavior categories. An analysis of motives by sex contributes to the literature by testing hypotheses about sex differences in employee environmental sustainability motives. Hypotheses about how motives and personality traits may jointly influence individual's motivation for pro-environmental behavior are examined. Here, I explore how the Big Five personality traits and facets are associated with different motives for green behavior, as well the traits associated with citing different barriers to green behaviors. Lastly, drawing upon research on multifinality, I investigate whether having multiple motives for engaging in green behavior results in a greater number of green behaviors performed.

Literature Review

Although past research has attempted to identify motives and barriers of pro-environmental behavior, none of this work has examined workplace settings. In addition,

factor analytic work has been limited to examining the structure of environmental concern and motives of environmental volunteering. Little research has expanded upon this work to examine the structure of a broader range of environmental motives or place environmental motives in the larger nomological network of green behavior. Questions that still remain include how individual difference variables such as sex and personality are related to motivation for employee green behavior. In addition, other questions that have yet to be examined include how motives are associated with different categories of green behavior, as well as how having multiple motives may influence green behavior.

Structure of Green Motives and Barriers

Although some previous research has examined the structure of pro-environmental motivation, particularly for environmental volunteering, the majority of research has examined the structure of environmental concern or value orientations. Stern and Dietz (1994) theorized that the structure of environmental concern would consist of three categories: biospheric, egoistic, and social-altruistic concerns or values. Biospheric values center around concern for the natural world (plants, marine life, birds, animals), egoistic values refer to concerns about one's own self (well-being of one's health, lifestyle, and future) and altruistic values are related to concerns about other people. Early factor analytic work initially failed to support these three distinct value orientations (Stern, Dietz, Kalof, & Guagnano, 1995). It wasn't until Schultz (2001) used more specific attitude measures of environmental concern organized around the value orientations that a stable three factor solution emerged.

There has been much less work on identifying the structure of motives for pro-environmental behavior. Research on this topic has examined the more narrow aspect of green behavior termed environmental stewardship, or volunteering to help the environment. Work in this area has specifically examined the structure of individuals' motivation to continue to volunteer (Ryan, Kaplan & Grese, 2001) and motives for individuals who are new to volunteering or intend to volunteer (Bramston, Pretty, & Zammit, 2011). Bramston et al. (2011) found three relatively independent factors that emerged from the responses of new or potential volunteers: developing a sense of belonging, caretaking for the environment, and expanding personal learning. Ryan et al. (2001) found five factors which motivated individuals to keep volunteering, including helping the environment, learning, project organization (e.g., characteristics of the environmental program such as organization, leadership and communication), social benefits, and reflection (e.g., personal benefits such as having a chance to do something physical or work at one's own pace). The three overlapping motives of the studies (e.g., helping the environment, learning, and social benefits) are fairly consistent with the three categories of concern: biospheric, egoistic, and altruistic. At the same time, however, other factors emerged that were also important factors in environmental stewardship.

In terms of work on the structure of barriers to pro-environmental behaviors, Klein, Wiernik, and Ones (2012) examined the structure of barriers to green purchasing behavior among 142 employees responsible for organizational purchasing decisions. They found five factors, including lack of support (e.g., lack of self-efficacy, no requirement, lack of knowledge, cultural norms), lack of concern (e.g., environmental

concern, environmental efficacy, lack of altruism, apathy), difficulty and inconvenience (e.g., habit or personal preference, difficult to identify sustainable products, carelessness, lack of availability, lack of achievement), financial considerations (e.g., no incentive for sustainable purchasing, financial and cost considerations), and quality considerations (e.g., health, safety, quality considerations).

A broader analysis of the structure of motives and barriers for green behavior in general has yet to be conducted. In addition, the structure of why employees perform green and ungreen behavior has not been examined. Study 1 found that while the types of motives for green behavior at work are similar to those within non-workplace settings, they have different manifestations in the workplace (i.e., engaging in a green behavior for the PR benefit to the organization). The present study seeks to examine the structure of motives and barriers to green workplace behavior by conducting an exploratory factor analysis to determine the structure of motives and barriers identified in Study 1. As outlined in Study 1 (Figure 2), motives were organized in accordance with Deci and Ryan's (2000) self-determination continuum, and factors similar to these categories are expected to emerge. These include: 1) a factor with intrinsic underpinnings (i.e., motives of environmental benefit, altruism, and social responsibility), 2) a factor with motives with extrinsic underpinnings (i.e., health, safety, requirement, financial/cost considerations, public relations, cultural norms), and 3) enabling capabilities or barriers related to the least self-determined category of amotivation (apathy, lack of self-efficacy, habit, lack of achievement drive, carelessness, lack of knowledge, and availability).

Sex and Motivation

Sex differences in pro-environmental behavior and many of its determinants (e.g., values, attitudes, concern, knowledge) have received a significant amount of attention in the literature given strong theoretical reasons for expecting sex differences in many of these criteria. However, it is much rarer for sex differences to be examined in the more proximal determinant of pro-environmental behavior: motivation. As evidenced in Study 2, only a very few empirical studies have investigated sex differences in motives in non-workplace settings. In addition, an examination of motives for employee green behaviors, as well as the full range of potential motives, is needed. This study represents the first attempt to comprehensively examine sex differences in the full set of motives for green behavior at work identified in Study 1. Although the topic of how sex may influence green behavior and other determinants was covered in greater depth in Study 2, the factors most relevant to sex differences in motivation will be reviewed here. A summary of expected sex differences in motives for employee's environmental sustainability motives can be found in Figure 14.

Sex Differences in Intrinsic Motivation

Gender role and socialization theories have been drawn upon as theoretical explanations for why women should be more likely to be concerned about the environment. These theories assert that women are raised to take on roles as mothers where they are typically in charge of child-reading, housework, and health-related issues (Gilligan, 1982), or observe men and women in different roles and then strive to successfully fulfill these roles (Eagly & Wood, 1991). Both theories suggest that women

learn to be more nurturing, cooperative, and warm than men. In fact, women have been found to be higher on the personality trait of tender-mindedness (nurturance) and warmth (Costa, Terraciano, & McCrae, 2001). In addition to sociocultural theories of personality differences, biological models posit that these differences are innate, with contemporary research suggesting that there is a strong biological basis for these differences (Bouchard & McGue, 2003). Regardless of the reason for these differences, researchers typically expect women to be more concerned about environmental issues in part given their tendencies toward nurturance. Mayer and Frantz (2004) found that women valued the environment to a greater extent and felt more connected to it than men across three different samples. A cross-cultural study of 2,160 participants from 14 countries from Europe, Latin America, and North America found a small relationship between sex and eco-centric values (r = .10; Zelezny, Chua, & Aldrich, 2000). In addition, women are also more concerned about specific environmental issues (Davidson & Freudenburg, 1996; McStay & Dunlap, 1983; Mohai, 1992). Because women tend to value and be more concerned about the environment, women should be more likely to cite environmental reasons as motives for green behavior.

Hypothesis 1: Women will be more likely than men to cite environmental reasons as a motive for pro-environmental behavior.

Women also tend to rank the value of altruism higher than men (Dietz, Kalof, & Stern, 2002). A recent study found that women were more likely to donate to workplace charities than men, an important component of corporate social responsibility (Leslie,

Snyder, & Glomb, 2013). Previous research on charitable giving in non-workplace setting found the most pronounced sex differences in giving was to human services charities (Andreoni, Brown, & Rischall, 2003), indicating that a desire to help others may drive the effect. Andreoni and Vesterlund (2001) found that women were more altruistic when the monetary costs of helping were greater, whereas men were more altruistic when the costs were small. Although the monetary costs of pro-environmental behavior in the workplace should be relatively low, it is likely that there are a myriad of other costs (i.e., effort, time) associated with green behavior given the large number of competing demands within the workplace. As such, it is likely that women will be more likely to cite altruism as a motive for green behavior at work. Women have also been found to be more likely to consider future consequences than men, indicating a concern for future generations rather than the self (Lindsay & Strathman, 1997). As such, women may be more likely to cite social responsibility as a motive of green behavior.

Hypothesis 2: Women will be more likely to cite altruism as a motive for pro-environmental behavior than men.

Hypothesis 3: Women will be more likely to cite social responsibility as a motive for green behavior than men.

Sex Differences in Extrinsic Motivation

Gender socialization and role theories posit that men are more likely to have a "marketplace mentality" which leads them to focus on economic growth without regard

to the costs of their actions. These costs may be environmental in nature, given the almost inevitable negative environmental impacts of economic activity (cf., Ones & Dilchert, 2012). Beutel and Marini (1995) found that female adolescents were more likely to value compassion, and less likely than males to value materialism and competition. Since green behavior can be leveraged as a means to increase business, I would expect men to be more likely to highlight green behaviors as business opportunities and cite the motive of public relations reasons as a reason for engaging in green behavior at work more than women. Also, given their tendencies to focus on cost, I would expect men to be more likely to cite cost considerations as a barrier to pro-environmental behavior.

Hypothesis 4: Men should be more likely to cite public relations reasons as a motive for green behavior.

Hypothesis 5: Men will be more likely to cite financial/cost considerations as a motive for green behavior as well as a barrier to green behavior compared to women.

Sociocultural theories have also been drawn upon to explain sex differences in risk perception. Since women are more likely to focus on the health and welfare of the family, risks associated with health and safety may be especially concerning to women. From a personality perspective, women also score higher on anxiety (Feingold, 1994) and the broader trait of Neuroticism (Costa, Terraciano, & McCrae, 2001). Women also tend to be more risk averse than men (Byrnes, Miller, & Schafer, 1999). Environmental problems, such as air pollution, ozone depletion, toxic waste, and acid rain can threaten

individuals' health and well-being. Women are more likely to view the quality of the environment as connected to their personal well-being, the well-being of others, and the health of the planet (Stern, Dietz, & Kalof, 1993). Women reported higher levels of concern than men about the effects of pollution on their health and well-being (Blocker & Eckberg, 1997). Consistent with findings that women are more risk-averse in general, women are also more likely to be concerned than men when asked about environmental issues associated with risk (Bord & O'Connor, 1997; Slovic, 1992; Solomon, Tomaskovic-Devey, & Risman, 1989). More specifically, Davidson and Freudenburg (1996) found that women were more concerned than men in 18 of 20 studies examining sex differences in risk-related environmental issues. Because women are more likely to be concerned about specific environmental issues which directly threaten health and well-being, I would expect women to be more likely to cite health reasons and safety reasons as motives for engaging in green behaviors, as well as motives for engaging in ungreen behaviors which may be done for health or safety reasons (i.e., throwing away disposable medical supplies).

Hypothesis 6: Women will be more likely than men to cite health reasons and safety reasons for engaging in pro-environmental behavior, as well as ungreen behavior.

Women score higher on average than men on the personality trait of compliance and dutifulness, two facets of Agreeableness (Costa, Terracciano, & McCrae, 2001). Since women are more likely to act in accordance with standards and social pressure and

fulfill obligations, I would expect women to be more likely to cite cultural norms as influencing their green behavior. In addition, women should be more likely than men to cite requirements for green or ungreen behaviors.

Hypothesis 7: Women will be more likely to cite cultural norms as a motive for green behavior than men.

Hypothesis 8: Women will be more likely to cite requirements as a motive for green behavior.

Sex Differences in Amotivation

Similarly women's Agreeable tendencies toward dutifulness and compliance may also lead women to be less amotivated with respect to the environment. Women may be more likely to cite a drive for achieving success when it relates to green behavior at work. In addition, women's tendencies to be more careful in fulfilling duties may also lead women to be less likely to cite carelessness as a motive for ungreen behaviors. In a similar vein, men may be more inclined to perform green behaviors when costs are low and view the availability and convenience as a factor under which they would be more likely to engage in green behavior.

Hypothesis 9: Women will be more likely to cite achievement drive as a motive for green behavior.

Hypothesis 10: Women will be less likely than men to cite carelessness as a barrier to ungreen behaviors.

Hypothesis 11: Men will be more likely than women to cite availability as a motive of green behavior.

Women have reported greater concern about lacking the knowledge to understand environmental issues (Guagnano & Markee, 1995). Given that women are less confident in their levels of environmental knowledge, I would expect women to be more likely to cite knowledge as a barrier to green behavior as well as a motive for ungreen behavior. Similarly, past research on sex differences in self-efficacy has found that men have higher levels of self-efficacy (Feingold, 1994), or competence (a Big Five facet of Conscientiousness; Costa, Terracciano, & McCrae, 2001). A study that included items about environmental self-efficacy of high school students found that females were more likely to express somewhat higher levels of self-efficacy than males (Meinhold & Malkus, 2005). Although this evidence suggests women may have greater environmental self-efficacy, men generally tend to score higher on general self-efficacy and report higher confidence in their levels of environmental knowledge. As such, I expect that in this study we will find that men may have higher levels of environmental self-efficacy.

Hypothesis 12: Women will be more likely to cite knowledge and self-efficacy as barriers to pro-environmental behavior.

Lastly, since women are more likely to be concerned and cite several motives for green behaviors (e.g., environmental benefits, health reasons, safety reasons), women have more potential reasons to engage in green behaviors and be in the habit of performing green behaviors. Since women are more likely to have reasons for engaging in pro-environmental behavior they should also be less likely to cite apathy as a barrier to or motive of ungreen behavior. Men, on the other hand may be more likely to cite apathy in these instances.

Hypothesis 13: Women will be more likely to cite habit or personal preference as a reason for engaging in green behavior.

Hypothesis 14: Men will be more likely to cite apathy as a barrier to pro-environmental behavior.

Five Factor Model Personality Traits and Green Behavior

Individual differences in the determinants (i.e., motivation) of behavior can arise given a large number of antecedents on which individuals also differ, including traits such as personality (Campbell et al., 1993). The Five Factor or Big Five Model (FFM) is the dominant framework used in the personality domain (McCrae & John, 1992). The model describes variations in personality along five dimensions: Conscientiousness, Agreeableness, Neuroticism, Openness to Experience, and Extraversion.

Personality has been linked to a wide range of work outcomes, including job performance (Barrick & Mount, 1991), organizational citizenship behaviors (Borman,

Penner, Allen, & Motowidlo, 2001; Dalal, 2005), and counterproductive work behaviors (Berry, Ones, & Sackett, 2007; Dalal, 2005). Personality traits are also linked to antecedents of green behavior, such as environmental concern and pro-environmental behavior (Hirsh, 2010; Markowitz, Goldberg, Ashton, & Lee, 2012). Research to date, however, has not examined the relationship between personality traits and motives to engage in sustainable behavior despite the importance of the relationship between personality and motivation (Dweck & Leggett, 1988). As such, the proposed research examines personality and the choice to engage in, devote effort to, and persist in the performance of different types of green behaviors. Each FFM personality facet, and how it would be expected to relate to pro-environmental behavior, is reviewed below, starting with traits that are expected to be most strongly related to green behavior. The hypotheses below are based on ratings made by myself and two subject matter experts (SMEs) on personality assessment who reviewed the motive categories and provided theoretical linkages to the Big Five personality traits. When three out of three or two out of three raters agreed, these linkages were hypothesized. In all cases where only a single rater hypothesized the linkage, the linkage and theoretical rationale were carefully reviewed. Figure 15 provides an overview of the hypothesized links between employee environmental sustainability motives and the Big Five dimensions of personality.

Openness. The personality trait of Openness to Experience is characterized by intellectance, unconventionality, and appreciation for aesthetics. Being open to experience involves being willing to consider different values and ideas, and taking unconventional approaches to problems. Since green behavior often involves challenging

conventional ways of acting, consuming goods, and unsustainable business practices, being open to values and ideas should be an important determinant of green behavior. In addition, much of nature is aesthetically pleasing and would likely be appreciated by someone high on openness. Openness has been most strongly associated with Schwartz's (1994) value dimension of universalism, which encompasses values related to feelings of understanding, appreciation, and protection of people and nature (Olver & Mooradian, 2003; Roccas, Sagiv, Schwartz, & Knafo, 2002). Egri and Herman (2000) found that environmental leaders rated universalism more highly than leaders of other types of organizations. Being open to ideas seems to be an important precursor to changing unsustainable business practices.

Openness has been found to be positively associated with environmental values (Hirsh & Dolderman, 2007; Markowitz, Goldberg, Ashton, & Lee, 2012; Milfont & Sibley, 2012), concern (Hirsh, 2010; Markowitz et al., 2012), goal setting (Hirsh & Dolderman, 2007), and behavior (Dilchert & Ones, 2011; Markowitz et al., 2012). The effect sizes are consistently between *r* of mid .20s and mid .40s. The Openness to Aesthetics subfacet is the most predictive of pro-environmental and green behavior (Dilchert & Ones, 2011; Markowitz et al., 2012). Given tendencies of individuals high on Openness to appreciate aesthetics and protect nature they should be more likely to be concerned about the environment and cite environmental benefits as a motive of green behavior. Similarly, their tendencies to value universalism and protect people should make them more likely to cite social responsibility. Extrinsic motives related to financial and cost considerations may also be less likely to inhibit green behaviors if the individual

intrinsically values the behavior. Since individuals high on Openness are less likely to conform to convention, they may cite extrinsic reasons such as cultural norms less frequently, and be less likely to perform green behaviors out of habit or personal preference. Since individuals high on Openness are also open to ideas and experiences, a lack of knowledge may be less likely to inhibit employee green behavior.

Hypothesis 15: The trait of Openness should be positively associated with intrinsic / prosocial motives such as environmental benefits and social responsibility.

Hypothesis 16: High Openness will be negatively associated with motives related to cultural norms and financial/cost considerations, as well as negatively related to habit/personal preference.

Hypothesis 17: Individuals high on Openness should be less likely to cite a lack of knowledge as a barrier to green behavior.

Agreeableness. The personality trait of Agreeableness has been associated with characteristics such as altruism, empathy, and compliance. According to Costa & McCrae (1995) subfacets of Agreeableness include Altruism, Compliance, Modesty, Tender-mindedness, Trust, and Straightforwardness. Agreeableness was most positively correlated with higher-order personal value of benevolence (Olver & Mooradian, 2003; Roccas, Sagiv, Schwartz, & Knafo, 2002), indicating that agreeable people have a tendency to be less self-focused and care strongly about the welfare of others. A broader sense of self is associated with a greater likelihood of developing a greater personal

connection with nature and green behavior (Arnocky, Stroink, & DeCicco, 2007; Mayer & Frantz, 2004). Benevolence was another value that was more important to environmental leaders than leaders of other organizations (Egri & Herman, 2000).

Because of their empathy and concern for others, Agreeable people tend to focus less on themselves and their own self-interests. Of all the Big Five personality traits, Agreeableness was the only predictor of consumerism, with a negative relationship between Agreeableness and consumerism (Hirsh & Dolderman, 2007). Agreeableness is also positively related to environmental values (Milfont & Sibley, 2012), concern (Hirsh, 2010), sense of connectedness to the environment (Nisbet, Zelenski, & Murphy, 2009), and environmental goals (Hirsh & Dolderman, 2007). In terms of behavior, Agreeableness is associated with recycling and reduction (Swami et al., 2010), electricity conservation (Milfont & Sibley, 2012), and the Green Five behaviors (Dilchert & Ones, 2011). Although relationships between Agreeableness and green behavior were in the expected direction in Markowitz et al.'s (2012) study, the relationship was negligible. Considering past research on the relationship between Agreeableness and pro-environmental behavior, the researchers posited that behavioral measures may not have tapped the "prosocial facet" of environmentalism. On the whole, however, Agreeable people seem to be more likely to put their own self-interests aside, consuming fewer resources and making sacrifices for the environment.

Because of their higher empathy, concern for others, and willingness to put other people and things ahead of their own self-interests, individuals high on Agreeableness will be more likely to endorse motive categories such as environmental reasons, altruism,

and social responsibility. Although Markowitz et al.'s (2012) second study found that the subfacet of Altruism correlated more highly with green behavior than with Compliance, Compliance may be more relevant to motivating behavior in workplace settings. In household environments, individuals in the U.S. have a fair amount of autonomy over whether or not they engage in green behavior and face few, if any, restrictions or requirements with respect to green behavior. At work, however, green behaviors can be a part of assigned duties or may be required within the workplace (Ones & Dilchert, 2012a). Ones and Dilchert (2010) found that about 29% of all employee green behaviors performed within the U.S. were required, while in Europe 13% of behaviors were required by organizations (Hill et al., 2011). Given their tendencies toward compliance, agreeable employees should be more likely to follow work requirements and cite requirements as a motive for workplace green, as well as ungreen, behavior. Agreeable individuals should also be more likely to conform to cultural or social norms related to green behavior within the workplace and be concerned about the organization's image with respect to green behaviors.

Hypothesis 18: Agreeableness should be positively associated with intrinsic / prosocial motives such as environmental reasons, altruism, social responsibility, and extrinsic motives such as requirement, cultural norms, and public relations.

Hypothesis 19: Individuals high on Agreeableness will be more likely to cite requirements as a motive for green and ungreen behavior.

Conscientiousness. Conscientiousness refers to achievement striving, competence, and self-discipline. Conscientious individuals have a tendency to be hardworking, persistent, dependable, self-controlled, organized, and methodical. Researchers have conceptualized Conscientiousness as having two aspects, a proactive side related to need for achievement and commitment to work, and an inhibitive aspect driven by cautiousness (Costa, McCrae, & Dye, 1991). Many green behaviors require self-discipline in that they may need to be repeated on a regular basis (e.g., recycling), involve extra effort (e.g., using public transportation, implementing environmental programs), or require planning (monitoring environmental impacts) and self-discipline (reducing resources, monitoring environmental impacts). A meta-analysis by Judge and Ilies (2002) found that Conscientiousness is related to goal-setting motivation ($\rho = .28$, $k = 18$, $N = 2{,}211$). This indicates that Conscientious individuals should be well-suited for and capable of performing employee green behaviors. Given that many environmental problems require persistence and long-term solutions, conscientious individuals certainly have traits they can draw upon to address these issues.

Although findings with respect to the relationship between Conscientiousness and environmental values and concern are mixed (Hirsh, 2010; Hirsh & Dolderman, 2007; Markowitz et al., 2012), Conscientiousness has been found to be positively related to green behavior (Dilchert & Ones, 2011; Swami et al., 2011; Markowitz et al., 2012; Milfont & Sibley, 2012). While the overall relationship between Conscientiousness and green behavior was negligible in one of Markowitz et al.'s (2012) samples (the community sample), the Conscientiousness subfacets of diligence and competency were

positively associated with green behavior. In the student sample the subfacet of self-discipline was associated with green behavior (r = .25; Markowitz et al., 2012) and the trait of Conscientiousness correlated r = .20. Dilchert and Ones (2011) found that the Cautiousness subfacet had the greatest relationship with green behavior relative to all other Conscientiousness subfacets.

Characteristics associated with Conscientiousness such as persistence, planning, and hard work help individuals complete work tasks. As a predictor of job performance, it is the personality factor that consistently predicts job performance across occupations (Barrick & Mount, 1991). Conscientiousness is also positively related to self-efficacy motivation, in that individuals high on Conscientiousness tend to be more likely to believe that they can successfully perform work behaviors (Judge & Ilies, 2002). Given that individuals high on Conscientiousness have a need for achievement and displaying competence, it is likely that individuals who engage in green behaviors will cite motives associated with a personal drive for achievement and self-efficacy while those who score low on Conscientiousness will cite a lack of achievement or self-efficacy as a barrier to green behavior. It is likely that conscientious employees will be more likely to be cognizant of and be persistent in fulfilling requirements and following cultural norms, as well as more likely to be concerned with projecting a positive image of their organization. As such, conscientiousness should be associated with requirement and public relations motives. Conscientious individuals have a tendency to be diligent and self-disciplined such that they may be more likely to make it a habit to perform green

behaviors. In addition, performing green behaviors may be seen as a way to be diligent in helping contribute to the environment and future generations and work and more broadly.

The inhibitive aspect of Conscientiousness, Cautiousness (or Deliberation), should also motivate individuals high on conscientiousness to engage in green behavior for health and safety reasons. Conscientious individuals have been found to engage in more beneficial health-related behaviors and fewer risky health-related behavior (Bogg & Roberts, 2004) as well as workplace safety behaviors (Christian, Bradley, Wallace, & Burke, 2009). Conscientious individuals may be more diligent in recognizing and avoiding health or safety threats posed by environmental risks and better equipped to follow meticulous health and safety policies and procedures. The inhibitive characteristics of Conscientiousness may also be a factor motivating green behaviors in the interest of cost savings. Conscientiousness is associated with fiscal responsibility in that conscientious individuals think more carefully about and plan purchases (Verplanken & Herabadi, 2001). Given that green behaviors are increasingly incorporated into the workplace as a way to implement cost savings, conscientious individuals engaging in green behavior should be more likely to cite cost saving than their less conscientious counterparts.

However, individuals often also have to engage in ungreen behaviors due to cost considerations, because they are required at work, or due to health or safety considerations. For motivating ungreen behavior, it is likely that conscientious individuals will be more likely to cite these motives given their dependability and diligence in completing work tasks. It is unlikely, however, that "achievement drive" and

"habit/personal preference" would be cited as motives for ungreen behavior by highly conscientious individuals as many ungreen behaviors are often not a typical way of showing competence or are habits a particularly Conscientious person would avoid (e.g., leaving lights on, throwing recyclable material into the trash, etc.). Instead, individuals low in conscientiousness may be more likely to cite availability or convenience of green options, a lack of drive, carelessness, or apathy for engaging in ungreen behavior.

Hypothesis 20: Individuals high on Conscientiousness will be more likely to cite intrinsic reasons of environmental benefits and social responsibility as reasons for engaging in green and ungreen behaviors.

Hypothesis 21: Conscientious individuals will be more likely to cite extrinsic motives of being required, cultural norms, public relations, health reasons, safety reasons, financial/cost considerations.

Hypothesis 22: Conscientious individuals will be more likely to cite achievement drive, self-efficacy, and habit/personal preference as motives for green behavior, while individuals low on Conscientiousness will be more likely to cite barriers related to amotivation including availability, lack of achievement drive, carelessness, and apathy.

Extraversion. Extraverts are sociable, energetic, and assertive, seeking out stimulating experiences and social interaction (Watson & Clark, 1997). Facets of Extraversion include Activity, Positive Emotions, Excitement Seeking, Warmth, and Gregariousness (Costa & McCrae, 2010). Since extraverts are more likely to find social

interactions rewarding, environmental activities that are group-oriented may offer a way for extraverts to pursue social interactions with others.

The relationship between Extraversion and environmental values has been found to be negligible (Markowitz et al., 2012; Milfont & Sibley, 2012; Wiseman & Bogner, 2003). There is a small negative relationship between Extraversion and environmental concern (Hirsh & Dolderman, 2007; Markowitz et al., 2012). Extraverts may be somewhat less concerned about environmental problems than others given their tendencies toward positive affect and optimism.

While Extraversion seems to be negatively related to environmental concern, a small positive relationship between Extraversion and green behavior was found across two studies conducted by Markowitz et al. (2012). The Activity subfacet had the highest correlation with green behavior. Since extraverts are more likely to find social interactions rewarding they should be drawn to social opportunities in which others are participating and for which cultural or social norms dictate a clear course of action. I would expect Extraverts to be more likely to cite cultural norms for engaging in green behaviors since many green activities may provide settings to interact with and engage in stimulating experiences with others and since extraverts should be more in tune and responsive to these norms. In addition, given their warmth and tendency to spend time with others, Extraverts should be more likely to cite social responsibility as a motive for their green behaviors.

Extraverts tendencies to be assertive, ambitious, and seek out stimulating experiences may cause employees to be more driven to engage in pro-environmental

behaviors, with less regard for financial or cost considerations. In other words, a lack of achievement drive and financial considerations should not be major barriers to green behavior for Extraverts.

It is likely that Extraverts will be less likely to cite self-efficacy as a barrier. Because of their general optimism about the future and positive affect, extraverted individuals should be less likely to be concerned about their own abilities to perform green behaviors and have an impact than less extraverted individuals. However, given their tendencies toward impulsiveness, ungreen behaviors may be performed as a result of haste and carelessness.

Hypothesis 23: High Extraversion will be related to extrinsic motives of cultural norms and public relations, as well as social responsibility motives for green behavior.

Hypothesis 24: Highly extraverted individuals will be less amotivated likely to cite amotivation due to a lack of self-efficacy and lack of achievement drive, as well as financial/cost considerations as barriers to green behavior at work. However, they should be more likely to cite carelessness as a barrier.

Neuroticism. Neuroticism is characterized by a lack of positive psychological adjustment, as well as emotional instability. Neurotic individuals tend to be prone to feelings of anxiety, stress, depression, and vulnerability. Since highly neurotic individuals experience more stress and anxiety than others, they may be more likely to be concerned about environmental issues that are associated with negative outcomes. In fact,

neuroticism has been found to be weakly associated with environmental concern (Hirsh, 2010) and support for environmental preservation (Wiseman & Bogner, 2003). While individuals who perceive a serious threat from environmental problems tend to be more likely to engage in pro-environmental behaviors such as purchasing environmentally safe products, conserving water, and limiting driving to reduce pollution (Baldassare & Katz, 1992; Seguin, Pelletier, & Hunsley, 1998), the relationship between Neuroticism and pro-environmental behavior is small to negligible (Dilchert & Ones, 2011; Markowitz et al., 2012; Milfont & Sibley, 2012). This suggests that while Neurotic individuals may be more concerned they are not necessarily more likely to take action.

When neurotic individuals do engage in pro-environmental behavior, it is likely that they will cite reasons related to risks that cause them increased stress or anxiety. Hirsh (2010) theorized that neurotic individuals may be more likely to be concerned about the environment for egoistic reasons rather than altruistic ones. Many environmental problems can pose a threat to one's health and safety. Environmental risks related to health and safety may be particularly concerning to more neurotic individuals. I would expect highly neurotic individuals to be more likely to cite health and safety reasons for engaging in green behavior. In addition, given their tendency to be self-conscious and concerned with how they perceived, it is likely that neurotic individuals will be more likely to engage in green behavior to project a positive image of themselves and their organization, to follow cultural norms, and to meet requirements. Through similar reasoning, it is also likely that neurotic employees will avoid negative outcomes associated with carelessness, lack of availability of green options. In other words, they

will be less likely to cite carelessness and availability as barriers to pro-environmental behaviors.

Neuroticism is also characterized by withdrawal and low self-esteem. Individuals high on Neuroticism may be more likely to be apathetic about green behavior, as well as doubt their ability to be able to perform or meaningfully contribute to environmental sustainability efforts. As such, I would expect these individuals to be more likely to cite apathy and self-efficacy barriers.

Hypothesis 25: Employees high on Neuroticism will be more likely to cite extrinsic motives of health reasons, safety reasons, public relations, cultural norms, and requirements as motives for green behavior.

Hypothesis 26: Employees high on Neuroticism will be less likely to cite amotivation due to carelessness and availability, but more likely to be amotivated with respect to apathy and self-efficacy as barriers.

Motives and Types of Green Behavior

This study also uses the motives and barriers taxonomy to begin to construct a larger nomological network around motives and how they are related to different types of green behavior. For instance, the three overarching motives of organizational citizenship behavior identified by Rioux and Penner (2001) displayed different relationships with the two categories of OCB (individual and organizational). They found that prosocial values motives were most strongly associated with OCBs directed at individuals and

organizational concern motives were most strongly related to organizational OCB. Within the environmental sustainability domain, investigations of motives have examined how different green behaviors relate to instrinsic motivation, extrinsic motivation, and amotivion. Pelletier, Tuson, Green-Demers, Noels, and Beaton (1998) found that high self-determined motives (i.e., "pleasure in contributing to the environment") were positively correlated with green behavior, whereas green behavior was negatively correlated with the least self-determined motives (i.e., "to avoid being criticized," "can't see what I'm getting out of it"). Mirosa, Lawson, and Gnoth (2011) examined the reasons individuals provided for engaging in energy-efficient and energy-inefficient behaviors. They found that energy-efficient behaviors were most consistently associated with values of being capable and intelligent (i.e., agency motives). Energy-inefficient behaviors were associated with "cleanliness" values, or a concern that certain behavior such as washing hands in cold water would be ineffective in terms of cleaning method. Although this study offered some interesting insights into why individuals engage in green behavior, it only examined one narrow type of behavior – energy usage.

Despite these initial investigations into how motives influence green behavior, there has yet to be an investigation of how motives relate to different factors of green behavior. For instance, for each of the two functionally and psychologically distinct green behavior factors, one might expect different sets of motives to be more important to behavior in these areas. The present study focuses on how different motives and barriers are related to the Reactive (Avoiding Harm, Conserving) and Proactive factors (Influencing Others, Taking Initiative, Working Sustainably) from Ones and Dilchert's

(2009) Green Five taxonomy. Although this investigation is primarily exploratory in nature, there are several motives and barriers that will be uniformly important, as well as some that are more highly associated with one green behavior factor relative to the other.

Motives for Overall Green Behaviors

First, I review motives that may be expected to be uniformly important in terms of their relationships with overall green behavior. That is, environmental benefits, apathy, and habit/personal preference motives will relate similarly to Proactive and Reactive behaviors. Given that the environmental benefits were the most prevalent motive that emerged in Study 1 and should likely influence people to engage in all different types of green behavior, the motive should have a fairly consistent relationship with both Proactive and Reactive categories. Similarly, it is also likely that apathy will be cited as a barrier fairly uniformly across all categories given that those who are apathetic with respect to the environment will not be any more interested in performing certain types of green behaviors compared to others. Furthermore, no differences are expected in Habit/personal preference motives. While individuals in previous eras grew up at a time when they needed to conserve resources, and recent generations have grown up with emphasis on the 3Rs, Reactive behaviors will likely be motivated by habit or personal preference. However, individuals who engage in Proactive behaviors, particularly given the Working Sustainably dimension, may similarly be in the habit of doing Proactive EGB on a regular basis at work.

Hypothesis 27: Proactive and Reactive behaviors will relate similarly to Environmental benefit motives.

Hypothesis 28: Apathy will be a barrier to both Proactive and Reactive behaviors.

Hypothesis 29: Habit/personal preference motives will relate similarly to Proactive and Reactive factors.

Motives and barriers that vary by behavioral category are described below. Figure 16 gives an overview of the hypothesized links between employee environmental sustainability motives and the major dimensions of employee green behavior.

Motives for Reactive Green Behaviors

Recall that the Reactive behaviors factor is comprised of Avoiding Harm and Conserving behaviors. The category of Avoiding Harm directly relates to preventing damage to the environment, including avoiding or inhibiting short or long-term environmental risks and problems. Ones and Dilchert (2012a) note that employees who go out of their way to avoid environmental harm are likely influenced by altruism and social responsibility, while harming the environment is associated with a lack of cautiousness, self-control, and responsibility. As such, motives for Reactive behaviors will likely include Altruism and Social Responsibility, while not engaging in Reactive employee green behaviors will likely include barriers of Carelessness. Similarly failing to

conserve resources may often be due to Carelessness (i.e., forgetting to turn off lights or recycle something).

Hypothesis 30: The Reactive behaviors will be motivated by prosocial motives such as Altruism and Social responsibility.

Hypothesis 31: Carelessness will be a barrier that is associated with Reactive behaviors to a greater extent than the Proactive behaviors.

Reactive behaviors should be relatively low cost in terms of time and effort because they are relatively easy to perform. People tend to choose pro-environmental behaviors that demand the least cost, in terms of not only money, but also time and effort (Kollmus & Agyeman, 2002). Environmental attitudes and low-cost behaviors do correlate significantly (Diekmann & Preisendörfer, 1992). Of the two green behavior factors, Conserving and Avoiding Harm have lower associated costs in terms of money, time, and effort (i.e., recycling, reusing something, reducing amount of materials used) relative to Proactive factors that include Taking Initiative and Working Sustainably. Given that Reactive behaviors are relatively easier to perform than Proactive behaviors, reactive green behaviors should be less likely to be inhibited by a lack of availability, lack of self-efficacy, and a lack of knowledge about how to perform the behavior than Proactive behaviors.

Hypothesis 32: The barriers of Lack of availability and a Lack of knowledge should pose less of an obstacle to Reactive behaviors than Proactive behaviors.

In addition to lower costs associated with the Reactive factor, Conserving behaviors are typically associated with frugality and thrift, where consumable resources are used prudently and waste is avoided (Ones & Dilchert, 2012a). The Conserving facet of green behavior consists of behaviors traditionally thought of as the 3Rs: reducing use, reusing, and recycling, as well as a fourth subfacet of repurposing. Given the association of many of these reducing and reusing behaviors with cost savings, the motive of cost effectiveness and thrift should be highly cited for conserving behaviors relative to other categories.

Hypothesis 33: Extrinsic motives of Financial/cost considerations will be more highly associated with Reactive green behaviors than Proactive behaviors.

It is likely that employees who engage in behaviors such as preventing pollution, monitoring environmental impacts, and working to strengthen ecosystems will also cite health reasons and safety reasons as motives for engaging in green behaviors relative to other categories of green behavior. The same characteristics that lead employees to be conscientious about the impacts of employee behaviors on the environment will likely also monitor the impacts of the environment on health and safety.

Hypothesis 34: Health and Safety motives will relate to Reactive behaviors.

Motives for Proactive Green Behaviors

The Proactive factor of EGB includes items related to Influencing Others, Taking Initiative, and Working Sustainably. The dimension of Influencing Others encompasses encouraging and supporting others and educating and training oneself and others for sustainability. The functional core of this category is exerting influence, with this Green 5 category as the only dimension with social underpinnings (Ones & Dilchert, 2012a). Given the pro-social nature of this facet, it is likely that individuals who encourage, support, and educate others about sustainability will be more likely to cite altruism as a motive for their behavior. Since altruism represents a selfless concern for others, it is likely that individuals who are involved with encouraging and supporting the pro-environmental endeavors of others will cite altruism and social responsibility as motives for Proactive behaviors more so than Reactive behaviors. Taking Initiative behaviors also reflect a selfless component in that they are related to rejecting the status quo and being willing to take risks (Ones & Dilchert, 2012a). Employees who feel a strong sense of social responsibility to future generations may be more willing to take these risks aimed at effecting lasting change. Although both Proactive and Reactive factors are expected to be associated with altruism and social responsibility, Proactive behaviors are expected to be linked to a greater extent given that consideration of others and a future-orientation is inherent to self-initiated Proactive behaviors.

Hypothesis 35: Prosocial motives of Altruism and Social responsibility will be more highly associated the Proactive behaviors compared to the Reactive behaviors.

Unlike Reactive behaviors, which are relatively low-cost behaviors, behaviors related to the certain Proactive behaviors such as Taking Initiative facet often require greater personal investment and sacrifice. Costs in terms of time, effort, and/or monetary investment are typically higher. For instance, the subfacet of initiating programs and policies in particular could be quite labor intensive. Individuals will most likely have to be very driven to perform these behaviors, while people who do not engage in these behaviors would be more likely to cite a lack of achievement drive as a barrier. As noted in Hypothesis 32, it is likely that a lack of availability or convenience will be more likely to be cited as a barrier to proactive behaviors in part because employees may view these behaviors as relatively inconvenient to perform at work, particularly in the face of competing work demands.

Relative to the Reactive behaviors, Proactive behaviors of Working Sustainably, Taking Initiative, and Influencing Others are also more likely to require specific pro-environmental knowledge. Creating products or changing work processes initiating programs and policies, and influencing others may involve specific knowledge about sustainable behaviors and processes. Influencing others also involves disseminating that knowledge to others within the organization. Lacking knowledge about specific issues or self-efficacy one's ability to engage in or influence others are likely common barriers to Proactive behaviors.

Hypothesis 36: Not only will amotivation barriers of lack of achievement drive, lack of knowledge and lack of self-efficacy be more likely to be associated with Proactive than Reactive factors as noted in Hypothesis 32, but these barriers will also pose some of the largest barriers to Proactive behaviors across motive categories.

Working Sustainably includes subfacets of changing how work is done to be more sustainable, creating sustainable products and processes, embracing innovations for sustainability, and making responsible product choices. Ones and Dilchert (2012a) describe the functional core of this category as adapting work products and processes to minimize negative impacts on the environment. Therefore, we would expect individuals who value the environment for its own sake to be more likely to create and embrace innovations that reduce the negative impacts of work processes on the environment. As the name of the category suggests, these activities are often core work tasks (creating products, changing work processes, choosing products, and innovating). Similarly, the category of Influencing Others which includes educating and training others may also be more likely to be required than Reactive behaviors of Conserving and Avoiding Harm. Although employees can engage in these activities without the tasks being a formal part of their job duties, these behaviors are embedded in the workplace such that they may be more likely to be a part of formal job duties or required by the organization more so than other green behaviors. As such, employees should be more likely to cite job requirements for Proactive behaviors relative to other categories.

Hypothesis 37: Proactive behaviors will be more likely to be motivated by the extrinsic motive of requirement than the Reactive factor.

The motive of Public Relations is also expected to be more likely to be cited as a motive of Proactive behavior than Reactive behaviors. D'Mello, Ones, Klein, Wiernik, and Dilchert (2011) found that the majority of green behaviors companies report engaging in are change-oriented proactive behaviors. This could indicate that there are more opportunities to engage in proactive green behaviors at work and that companies also want to highlight these change-oriented behaviors. As such, cultural norms, public relations, and self-image motives may be more likely to be associated with Proactive employee behaviors. At the individual level, presenting one's organization in a positive light by highlighting or participating in green behaviors may be a way employees can influence others, including other employees, stakeholders and communities. At the same time, employees may also observe more proactive behaviors at work or hear more about change-oriented iniatives and so cite cultural or social norms for these behaviors and be viewed as a way to maintain an eco-friendly image.

Hypothesis 38: Image-based motives such as Public relations, Self-image, and Cultural norms will be cited as a motive for Proactive EGB to a greater extent than Reactive behaviors.

Multifinality

Control theories of self-regulation posit that higher order goals are able to be achieved through multiple lower order means, and one behavior can serve multiple goals (Carver & Scheier, 2000). The construct of multifinality has been described as a "motivational structure wherein a single means is linked to several ends" (p. 22, Kruglanski et al., 2012). In others words, a single behavior can be performed in the service of multiple goals. Considerations of the size of the multifinality set (the extent to which a behavior is linked to higher order goals) has been theorized to influence choice among behaviors. An activity that represents the concurrent pursuit of multiple ends has the potential to attain multiple goals which should increase the value and appeal of the activity. Initial empirical work supports these theories, with students' commitment to studying strongest when linked to multiple goals (Kruglanski et al., 2002).

The present study will examine whether having a greater number of motives linked with green behavior will be associated with individuals being more likely to engage in these behaviors. Study 1 demonstrated that a single green behavior can serve multiple ends (i.e., a common combination being that green behavior can serve to have an environmental benefit as well as cost savings). The present study includes an examination of whether an individual is more likely to perform green behaviors when they also have a greater number of motives for engaging in those behaviors.

Hypothesis 39: A greater number of motives cited will be associated with individuals being more likely to engage in green behaviors.

Method

Based on a motives taxonomy constructed through critical incident interviews with employees in Study 1, a scale assessing the motives of and barriers to green and ungreen behavior of employees was constructed. Since the goals associated with performing and not performing a green behavior (i.e., reducing resource consumption) are not simply opposites of each other (Richetin et al., 2012), this study examined employee motives for engaging and not engaging in EGBs separately. Green behavior performance, or why individuals engaged in green behavior, was examined separately from why individuals did not engage in green behaviors (green behavior omission). Not only does this study examine motives for a wider range of green behaviors within workplace settings according to this framework; it also extends past research by examining motives for engaging in ungreen behavior (ungreen behavior commission) and not engaging in ungreen behaviors (ungreen behavior avoidance) at work within the same study. The four quadrants of green behavior performance, green behavior omission, ungreen behavior commission, and ungreen behavior avoidance and represented in Figure 17.

Participants

Participants were 345 students (33% male, 67% female) from the University of Minnesota with work experience who completed the survey in December 2013. Students with work experience were recruited from introductory psychology courses. They completed the surveys online after agreeing to participate and received course credit for their participation. Participants were 16 to 45 years old (M = 20.06, SD = 2.81) and had an average of over three years of work experience (M = 39.83 months, SD = 37.83, range

= 1 to 312). Participants had worked at an average of 3.51 jobs (SD = 2.48). The majority of respondents reported currently working in a skilled or semi-skilled profession (53%), followed by unskilled (17%), clerical (13%), professional (6%), and managerial (4%) professions. Seven percent were not unemployed at the time of the survey.

Measures

Green Five Behavior Checklist. The first survey participants completed was the Green Five Behavior Checklist. This was presented first in order to get a behavioral report of participants' employee green behavior before they were asked more detailed questions about motives in conjunction with their employee green behavior. The 36-item Green Five Behavior Checklist is a criterion measure based on the empirically developed taxonomy of employee green behaviors (Ones & Dilchert, 2009, 2010). Items ask respondents to indicate whether or not they had engaged in a variety of green behaviors at work over the past 12 months. The checklist assesses the specific sustainability efforts of recycling, limiting use of natural resources to conserve, choosing alternative (more environmentally friendly) work arrangements (e.g., telecommuting), making environmentally friendly consumer choices, and taking part in environmental initiatives. The measure represented both the Proactive and Reactive factors of EGB. The Reactive factor was comprised of 18 items assessing the green five dimensions of Conserving and Avoiding Harm dimensions, while the Proactive factor was comprised of 18 items assessing the dimensions of Influencing Others, Taking Initiative, and Working Sustainably. The internal consistency reliability of the overall scale was .81 in this sample. Cronbach's alpha for both the Proactive and Reactive factors was .70.

Intercorrelations between the overall scale and subscales can be found in Table 20.

Eco-Reputation. Five items were used to measure an individual's environmental reputation on a 1 to 5 scale (Ones & Dilchert, 2010). These items asked about the extent to which participants were regarded as environmentally conscious and how eco-friendly they were compared to others (e.g., "Overall, I am regarded as an environmentally conscious person"). The internal consistency reliability of the scale was .82 in this study.

Employee Environmental Sustainability Motives Scale. An initial set of motive responses was developed based on the motives and barriers identified in Study 1, with all motive and barrier categories represented as motive responses. To ensure that the motives were in response to specific green behaviors and ungreen behaviors respondents engaged in or refrained from eighteen behaviors representing both Proactive Green Behaviors (i.e., Influencing Others, Taking Initiative, and Avoiding Harm) and Reactive Green Behaviors (i.e., Conserving and Avoiding Harm) were used to prompt the motive responses. Participants indicated on a 1 to 5 scale how often they engaged in green behaviors over the past 12 months at work (1 = *Never*, 5 = *Very Frequently*). Reactive behaviors were from the Conserving and Avoiding Harm domains, whereas, Proactive behaviors were from the Influencing Others, Taking Initiative, and Working Sustainably domains. Eighteen behavior items (see Table 21) were followed by items assessing employees' motives for green and ungreen behavior at work.

Each behavioral item was followed by questions about why the participants engaged or did not engage in the behavior. A pool of 576 motives items was constructed to assess the 15 motives and 17 barriers of green and ungreen behavior within workplace

settings. Since carelessness and apathy only serve as barriers to green behavior, these two categories were not included as response options for green behavior performance (i.e., recycling because one was careless or apathetic would be nonsensical), as well as ungreen behavior avoidance. The 17 barriers were included in the scales assessing why people did not engage in green behavior and why they engaged in ungreen behavior. The four quadrants of behavior were examined separately: green behavior performance (reasons for engaging in EGB), green behavior omission (reasons for not engaging in EGB, or barriers to EGB), ungreen behavior commission (reasons for engaging in ungreen behavior), and ungreen behavior avoidance (reasons for not engaging in ungreen behavior).

The standard set of response options were modified for readability and grammar to fit with each green behavior item stem. The motive responses were reviewed in the context of each of the behavior items and checked for grammar and readability (i.e., noun-pronoun agreement) with modifications made as needed. After initial development of the behavior items and motive responses, the items underwent review for content and readability by three other I/O psychologists. An example set of motive and barrier response options are listed in Table 22 and all motive items are listed by behavioral quadrant in Appendices C1 through C4.

For each of the 13 green and five ungreen behavior items, participants received a set of motive or barrier items conditional upon their response to each behavior item. Participants who checked the response options of "sometimes", "frequently", and "very frequently" were asked why they engaged in the behavior at work, whereas those who

answered “never” or “rarely” were asked why they did not. Participants who reported performing a green behavior (or not performing an ungreen behavior) were asked why they engaged in the green behavior (or why they didn’t do an ungreen behavior). They were then presented with the list of 15 motive categories based off of Study 1 and were asked the extent to which each factor influenced their behavior (1 = *Not at all*, 7 = *Extremely*). Participants who reported “never” or “rarely” performing a green behavior (or why they engaged in ungreen behaviors) were asked why they did not engage in the green behavior (or why they engaged in the ungreen behavior) and were presented with the 17 barrier response options. The participant’s response to each of the 18 behaviors generated the appropriate list of motive items and response options. There were 195 motive items that assessed green behavior performance and 221 items assessing green behavior omission. Reasons for ungreen behavior commission were assessed with 85 motives for ungreen behavior commission and ungreen behavior avoidance was assessed with 75 items.

The data accumulated from the motives items were factor analyzed within each of the four behavior quadrants. Four-factor solutions were ultimately retained across the four behavior quadrants. The four motive factors (*Prosocial*, *Enabling Capabilities*, *Extrinsic*, and *Image*) are described in detail in the results section.

Items were selected to form two shortened scales, the Environmental Sustainability Motives Scale – Long Form (ESMS-LF) and Short Form (ESMS-SF). The long form was constructed to measure each of the four motive factors, as well as each of the motive categories with homogenous item clusters, within each behavioral quadrant. The short

global form was intended to be to assess each of the motive categories with a global item and the four factors within each behavioral quadrant. Items were selected based on three criteria. First the number of people who responded to the item was taken into account in order to ensure that motive items for behaviors people actually engage in (or do not engage in for omission and avoidance) were selected. Item properties were also taken into account. Item fit was assessed by computing item total correlations, alphas, and alpha if item deleted for each item with the other items in its respective motive category and motive factor. For the long form, items having the best fit with the motive category were selected, while for the short form the reliabilities with other items in the motive factors were considered. Means, standard deviations, skew, and kurtosis were computed and examined. Lastly, actual item content and representation of different types of behaviors was considered. Psychometric properties of the scale, including number of items, reliabilities, and intercorrelations, are described in detail in the results section.

Personality. Personality was measured using the NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992). The NEO-PI-R is a 240-item scale assessing five major dimensions of personality. The domain scales include Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. Each personality trait is comprised of six facets, all of which are measured with eight items. Responses to these items are based on a five point scale, ranging from 0 = *strongly disagree* to 4 = *strongly agree*. Coefficient alphas for the Big Five personality constructs in this study were .90 for Neuroticism and Agreeableness, .91 for Extraversion, .88 for Openness, and .92 for Conscientiousness. Facet reliabilities may be found in Appendix D.

Data Analyses

Structure of employee environmental sustainability motives.

Exploratory factor analyses followed by Oblimin rotations were performed in order to examine motive structure. A number of different extraction methods were utilized, including examination of scree plots, Zwick and Velicer's (1986) minimum average partial test, and eigen values compared to the eigen-value-greater than one criterion. In addition, solutions with different sets of factors (i.e., 3 and 4) were also examined. The resulting four factor solutions that were retained, their intercorrelations, and item properties of the ESMS-LF and ESMS-SF are reported in the results section. The final version of the ESMS-LF and its factors were used to assess relationships with other variables and constructs, and examination by motive category was incorporated where they provided further information.

After conducting the exploratory factor analyses, the similarity between the four factors that were retained across different motivational quadrants was examined. This was done by performing Procrustes matching, or transforming the factor structure from one set of factor loadings to match an observed target matrix as closely as possible by minimizing the loadings between matrices (Korth & Tucker, 1976), and then computing congruence coefficients. The rotated solution maximizes the congruence coefficient between the transformed and target matrices. Congruence values of .95 are indicative of good similarity and the two factors can be considered equal. Values ranging from .85 to .94 indicate a fair similarity between factor pairs (Lorenzo-Seva & ten Berge, 2006). The factor solutions for behaviors associated with positive outcomes, performing green

behaviors and avoiding ungreen behaviors, were compared (i.e., green behavior performance and ungreen behavior avoidance). Factors pairs from the green behavior omission and ungreen behavior comission quadrants were also compared. A Procrustes rotation was performed to rotate the factor loading matrices obtained from the exploratory factor analysis of ungreen behavior avoidance to match that of the green behavior performance motives loadings as closely as possible. The congruence coefficient was then computed in R using the package psych. Similarly, the four factors from the ungreen behavior commission solution were rotated to best fit the green behavior omission structure before computing the congruence coefficients between solutions.

Frequency of employee environmental sustainability motives. The average extent to which each motive influenced participants was computed across behaviors within each behavioral quadrant in order to examine the extent to which employees are driven and inhibited by different motives at work.

Sex and motivation for EGB. In order to examine the hypotheses related to sex, sex differences in the frequency with which each motive and barrier category were cited was examined by computing *d* values that compare the mean number of times men and women cite each motive or barrier category. These *d* values are presented for each motive and barrier category, along with *d* values corrected for unreliability in the criterion (environmental motive category). Cohen's *d* values are the mean difference between groups in standard deviation units, with values around .20 considered small, .50 considered medium, and values above .80 considered large (Cohen, 1992).

Linking personality to employee environmental sustainability motives. The relationship between employee environmental sustainability motive factors and personality was explored in order to build the nomological network between the two constructs. The correlations between the motive facets and the Big Five personality traits were examined in order to determine the degree of the relationship between motives for green behavior and personality. Correlations were corrected for unreliability in measurement of both personality traits and motivation. The correlations with personality facets were also examined and reported.

Employee green behavior and motives. Pearson product-moment correlations were computed between the Proactive and Reactive factors of the 36-item checklist in order to determine how motives relate to different types of green behavior. Correlations were also corrected for unreliability in measurement of behavior and motive factors. Averages of motives by the type of green behavior were also computed.

Multifinality. Multifinality of motives for pro-environmental behavior was examined. The sum of each participant's ratings on all of the motives was computed across each behavioral quadrant. The total motives participants cited was then correlated with a count of the total behaviors participants performed in order to determine if and to what extent having multiple motives for pro-environmental behavior is related to the frequency with which green behaviors are performed.

Environmental motives as predictors of employee green behavior. Hierarchical multiple regression was used to examine the extent to which environmental sustainability motives predict EGB from the Green Behavior Scale. Given findings on the relationship

between personality and pro-environmental behavior, the Big Five personality traits were first entered as a set. Next, the ESMS factors were added as a set to determine the extent to which environmental sustainability motives provide incremental validity beyond personality traits.

Results

Motive Structure

Possible factor solutions were examined by each quadrant of behavioral performance, omission, and avoidance.

Motives for Green Behavior Performance

First, an exploratory factor analysis (EFA) of the motive categories across 13 items assessing green behavior performance was run in SPSS. The scree plot indicated three or four factors (Figure 18). Zwick and Velicer's (1986) minimum average partial criterion indicated four factors. While according to Kaiser's (1960) eigen-value-greater than one criterion, three factors would be extracted, the fourth factor had an eigenvalue of .99. Given these findings, both three and four factor solutions were examined. The additional factor that was extracted was comprised of prominent loadings on safety reasons, health reasons, and financial/cost considerations, which had previously loaded on a factor related to other extrinsic benefits of green behavior (i.e., cultural norms, public relations, and requirement). The fourth factor was retained given that it seemed functionally distinct and accounted for an additional 6.58% of variance. It was also consistent with theoretical distinctions and the other quadrants of behavior.

An oblimin rotation of the four-factor EFA resulted in the first factor comprised of loading on lack of knowledge, lack of self-efficacy, lack of achievement drive, availability, and habit, personal preference motives (Table 23). Given that these items had to do with facilitating employee green behavior, this category was labeled *Enabling Capabilities* motives. The second factor was the additional factor that emerged in the four factor solution which comprised prominent loadings on safety reasons, health reasons, and financial/cost considerations. These safety, health, and financial motives represent some of the extrinsic benefits often linked with green behavior so this factor was labeled as the *Extrinsic* factor. The third factor was labeled the *Prosocial* factor, because it represented the desire of employees to help the environment as well as help others, including the motives of environmental benefits, altruism, and social responsibility. Lastly, the fourth factor was comprised of public relations, cultural norms, self-image, and requirement. Given that these motives serve the function of impression management, this factor was labeled *Image*.

Motives for Green Behavior Omission

Next, motive categories assessing reasons for green behavior omission were factor analyzed and examined. The scree plot (Figure 19), eigen-value-greater than one criterion, and the minimum average partial test all indicated a four-factor solution. These four factors were similar to those for green behavior performance, so the same factor names were used (Table 24). The first factor to emerge had loadings on apathy, environmental benefit, self-image, social responsibility, altruism, and habit, personal preference (*Prosocial* factor). The second factor, or *Extrinsic* factor, comprised health

reasons, safety reasons, and financial/cost considerations. The third factor, *Enabling Capabilities*, included lack of knowledge, availability, lack of self-efficacy, and lack of achievement drive. Lastly, cultural norms, public relations, and requirement loaded onto the last factor *Image*.

Motives for Ungreen Behavior Commission

Turning to motives for ungreen behavior commission, the eigen-value-greater than one criterion indicated four factors, while the scree plot (Figure 20) and Velicer's minimum average partial test indicated three factors. As such, both three and four factor solutions were examined. Given the similarity of the four factor solution to those for green behavior performance, and particularly green behavior omission, the four factor solution was obtained (Table 25). The motives first factor was the Prosocial factor which included environmental benefit, social responsibility, altruism, self-image, apathy, and carelessness. The second Extrinsic factor comprised safety reasons, health reasons, requirement, and financial/cost considerations. The third factor included lack of achievement drive, availability, habit, personal preference, and lack of self-efficacy. The final factor had loadings on cultural norms, public relations, and lack of knowledge.

Motives for Ungreen Behavior Avoidance

Lastly the motives for ungreen behavior avoidance were examined. Although the scree plot (Figure 21), eigen-value-greater than one criterion, and Velicer's minimum average partial test all indicated three factors, the four factor solution was also examined given that four factor solutions had been retained for the other behavioral dimensions (Table 26). The fourth factor was again related to extrinsic benefits, including health

reasons, safety reasons, and financial/cost considerations. The solution including four factors was retained given the consistency with the other solutions and so that relationships with the *Extrinsic* factor could be examined separately. The four factors that the motive categories loaded onto were the same as those for green behavior performance (i.e., Prosocial facet comprised environmental benefit, altruism, and social responsibility).

Consistency of Motive Categories Across Factor Analyses

Factor analyses for the motives of each behavior can be found in Appendix E. On the whole, the four factor solutions were fairly consistent in terms of on which factor the motives categories loaded. In some cases, minor variations in how the motives load onto the factors reflect the uniqueness of the behavioral item in question. For instance, while the motive of requirement typically loads onto the Image factor, the motive category had the highest (negative) loadings with the Prosocial factor for the embracing eco-friendly innovations item. Similarly, while financial/cost considerations typically loaded onto the Extrinsic factor, with the disposing of waste properly item it loads onto *Image*. However, across items there is generally more consistency than variation.

Similarity between the four factor solution obtained for the green behavior performance and ungreen behavior avoidance quadrants, as well as green behavior omission and ungreen behavior commission was assessed. A Procrustes rotation was performed and congruence coefficients between factors were computed. The congruence coefficients for green behavior performance and ungreen behavior avoidance ranged from .97 to .99 (Table 27), indicating high congruence between each of the four factor pairs

across quadrants such that factors could be considered identical. Similarly, congruence coefficients for the Prosocial and Extrinsic factor pairs compared across green behavior omission and ungreen behavior performance quadrants were high (both were .98). The values for Enabling Capabilities and Image motive factors were not as high, but still indicated fair congruence, with values of .86 and .87, respectively (Lorenzo-Seva & ten Berge, 2006).

Psychometric Properties

Properties of each item originally administered can be found in Appendix C, including the motive item, the number people that responded to the item, means, standard deviations, medians, and modes. From the 576 motives items that were administered, a long and short form of the Environmental Sustainability Motives scale was constructed based on the four factors that emerged from the factor analysis (see the methods section for item selection criteria). A total of 193 items were selected for the final Environmentally Sustainable Motive Scale Long Form (ESMS-LF; items listed by behavioral quadrant are provided in Appendices F1 through F4). The ESMS Short Form consisted of 64 items (Appendix G).

Table 28 contains the correlations between the behavioral quadrants as measured by the ESMS-LF. The strongest observed correlations are between the ungreen behavioral commission and avoidance quadrant motives (r = -.59, ρ = -.63) and the green behavioral performance and omission items (r = -.58, ρ = -.60). Green behavior performance and ungreen behavior avoidance were correlated .55 (ρ = .57), and green

behavior ommission and ungreen behavior avoidance were also positively correlated (r = .40, ρ = .42).

The number of items, alphas, means, standard deviations, and average inter-item correlations of the items comprising homogenous items clusters on the long form of the ESMS scale can be found in Table 29 through 32. The intercorrelations between homogenous item clusters are in Table 33 through 36. Correlations between homogenous item cluster for green behavior performance ranged from r of -.05 (ρ = -.06; Environmental benefit-Requirement) to .72 (ρ = .84; Lack of knowledge-Lack of self-efficacy; Table 33). For green behavior omission, correlations ranged from -.10 (ρ = -.11; Availability-Health reasons) to .81 (ρ = .91; Safety reasons-Health reasons; Table 34). Ungreen behavior commission homogeneous item cluster correlations ranged from -.06 (ρ = -.08; Availability-Requirement) to .76 (ρ = .90; Environmental benefit-Altruism; Table 35). Lastly, the range was .01 (ρ = .01; Lack of achievement drive-Requirement) to .73 (ρ = .86; Altruism-Social responsibility; Table 36) for ungreen avoidance.

A summary of the final number of items, alphas, means, standard deviations, and average inter-item correlations of the items in the long and short forms of the scale can be found in Table 37. The stratified coefficient alphas for the subscales of the long form ranged from .93 (Extrinsic) to .98 (Enabling Capabilities) for green behavior performance and .89 (Extrinsic) to .96 (Prosocial) for green behavior omission. The average interitem correlations ranged from .47 to .78 for green behavior performance and .44 to .50 for omission. In terms of ungreen behavior, stratified alphas ranged from .84 (Image) to .94 (Prosocial) for ungreen behavior commission and .86 (Extrinsic) to .96 (Enabling

Capabilities) for ungreen avoidance. Average interitem correlations ranged from .32 to .45 and .41 to .62, respectively.

Within each behavioral quadrant all of the factors were positively correlated with one another. Correlations ranging from .70 (ρ = 73; Extrinsic-Enabling Capabilities) to .84 (ρ = .86; Prosocial-Enabling Capabilities) for motives of green behavior (Table 38). Correlations for ungreen behavior avoidance ranged from .41 (ρ = .46; Extrinsic-Image) to .74 (ρ = .79; Prosocial-Enabling Capabilities; Table 39). For ungreen behavior, *r*s ranged from .55 (ρ = .63; Extrinsic-Enabling Capabilities) to .71 (ρ = .80; Prosocial-Image) for ungreen commission (Table 40), and .73 (ρ = .78; Prosocial-Image) to .77 (ρ = .86; Extrinsic-Image) for ungreen avoidance (Table 41). Correlations amongst all the environmental sustainability motives factors across behavioral quadrants can be found in Table 42. The convergent validities for the motive factors across green-ungreen behavior performance/avoidance categories were high, however it is important to stress that these factors are not operationally equivalent (i.e., they bring about different performance/avoidance behaviors) and isomorphic (due to the scale construction approach used here [i.e., motive responses being contingent on behavioral responses]).

Frequency of Motives of Employee Green Behavior

Average scores on each motive category were computed and compared. Out of a possible range from 1 to 7, the average rating for green behavior performance ranged from 3.27 (*SD* = 1.53) to 5.05 (*SD* = 1.08) (Table 43; Figures 22 and 23). Individuals engaged in green behavior due to six primary motives which include knowing how to perform the behavior, self-efficacy, achievement drive, habit, personal preference,

environmental benefits, and availability. Confidence intervals associated with each of these motives did not overlap with the other nine motives, although there was overlap amongst the top six motives themselves. Motives from the Extrinsic and Image factors had the lowest average ratings.

Average ratings for motives for green behavior omission ranged from 2.02 (*SD* = 1.04) to 4.50 (*SD* = 1.29; Table 44, Figures 24 and 25). The most highly endorsed barriers of EGB were lack of availability, lack of knowledge, and lack of achievement drive. All of the confidence intervals of the means did not overlap with each other and also did not overlap with all of the other motives that were cited less frequently. Altruism, health reasons, and environmental benefits were the least likely to be endorsed as barriers.

Ungreen behavior commission motive endorsement ranged from 1.98 (*SD* = 1.10) to 4.55 (*SD* = 1.46; Table 45). Three motives were rated higher than 4 on average and included lack of availability, lack of achievement drive, and habit, personal preference (Figures 26 and 27). Confidence intervals for a lack of availability and lack of achievement drive overlapped, but did not habit/personal preference. Confidence intervals for all three motives did not overlap with the rest of motives for ungreen behavior commission. People also reported that motives of lack of altruism, disregard for environmental benefits, and lack of social responsibility were the least likely to impact engaging in ungreen behavior.

Lastly, there were six motives that were most highly endorsed by individuals not engaging in ungreen behavior (motives receiving an average rating of 4 or higher) and

with confidence intervals not overlapping with other motives (Table 46; Figures 28 and 29). These motives of ungreen behavior avoidance included achievement drive, habit/personal preference, availability, environmental benefit, knowledge, and self-efficacy. The lowest average ratings were for public relations and requirement.

Sex Differences in Environmental Sustainability Motives

Given the lack of research on EGB, and on pro-environmental behavior more broadly, the difference in which men and women cited environmental sustainability motives was examined. Women were expected to score higher on all three motives that ended up comprising the Prosocial facet of motives for EGB, which included Environmental benefits, Altruism, and Social Responsibility (Hypotheses 1, 2, and 3). These hypotheses received support, with women scoring higher than men on the Prosocial facet. The standardized mean difference, or *d* value, was .37 which was associated with a 90% confidence interval ranging from .18 to .56 (Table 47).

There were also a number of hypotheses with respect to Enabling Capabilities motives. Women were expected to be more likely to be in the habit of performing green behaviors (Hypothesis 13) and cite a sense of achievement drive as a motive for performing green behavior at work (Hypothesis 9) to a greater extent than men. In contrast, Hypothesis 11 predicted that men would be more likely to cite availability as a motive of green behavior, given that they might be more inclined to engage in green behaviors when accessibility obstacles were removed. The findings with respect to Enabling Capabilities indicate that women were more likely to cite Enabling Capabilities as motives to EGB (*d* = .45, 90% CI = .26 to .64) and the effect sizes for each motive

category were in the same direction, ranging from a *d* of .34 to .47. Thus, Hypothesis 13 and 9 both received support, while Hypothesis 11 was not supported.

Women were more likely to cite Extrinsic motives for green behavior (*d* = .25, 90% CI = .06 to .45). Examination by motive category revealed that this difference was largely driven by Financial/cost considerations (*d* = .37; 90% CI = .16 to .58; Table 48). These findings are contrary to Hypothesis 5, which predicted men would be more motived by financial considerations. While women were expected to be more likely to cite health and safety motives and sex differences were in the expected direction, CIs included zero so Hypothesis 6 also did not receive support.

Women were more likely to cite Image motives for EGB, however this difference was not meaningful given that the confidence interval included zero (*d* = .17, CI = -.02 to .36). Examination of homogeneous items clusters revealed that women were more likely to cite cultural norms (*d* = .23; 90% CI = .04 to .42; Hypothesis 7) as well as factors related to self-image. While men were expected to be more likely to cite public relations and women were expected to be more likely to cite requirements (Hypotheses 4 and 8, respectively), neither of these hypotheses received support as sex differences were negligible for these motives.

The only meaningful sex difference with respect to green behavior omission was on the Prosocial factor (*d* = -.27; 90% CI = -.46 to -.07). This indicates that on average men were more likely to cite apathy and not being influenced by prosocial factors such as environmental benefits, altruism, and social responsibility as reasons for not engaging in green behaviors. This supports Hypothesis 14 which predicted men would be more likely

to cite apathy as a barrier. While women were less likely to cite carelessness as a barrier to ungreen behaviors than men (Hypothesis 10), the effect size was associated with a confidence interval that included zero (Table 49). All of the remaining sex differences in motive facets for not engaging in green behavior were not meaningful. While women were expected to be more likely to cite knowledge and self-efficacy as barriers to pro-environmental behavior (Hypothesis 12), this hypothesis did not receive support.

With respect to ungreen behavior commission and avoidance, all of the sex differences on motive factors were associated with confidence intervals that overlapped with zero. There were meaningful differences for some of the homogenous item motive clusters related to Prosocial and Enabling facets which were generally consistent with findings from the corresponding green behavior performance/omission category (Tables 50 and 51). One exception was that while there were not meaningful sex differences in safety motives as a motive for green behavior, women were more likely to cite safety reasons for not engaging in ungreen behavior (d = .36, 90% CI = .14 to .59). Differential sex differences such as these across behavioral quadrants highlight the importance of keeping these motives for behavioral quadrant separate.

Personality Findings

Correlations between each of the Big Five personality traits and the motive categories for green and ungreen behavior were computed (Table 52; Figures 30 to 33). Correlations with the personality facets of each trait were also examined and are presented by behavioral quadrant in Tables 53 through 56. Tables 57 through 60 show correlations between personality and the ESMS Long Form and Short Forms. Lastly,

Appendices H1 through H4 contain the correlations between each motive category and the Big 5 personality traits. Across personality findings, observed correlations with values greater than .09 were associated with confidence intervals that do not include zero. Findings related to each motive facet, as well as motive categories where notable, are discussed below.

Openness

Prosocial motives of green behavior were positively related to Openness (r = .26, ρ = .28), supporting Hypothesis 15 (Table 52). Consistent with this finding, Prosocial reasons were also less likely to be cited for *ungreen* behavioral commission (r = -.27, ρ = -.30) and green behavior omission (r = -.29, ρ = -.32). The Prosocial factor was also positively associated with ungreen behavior avoidance (r = .16, ρ = .17).

Open individuals were also more likely to cite Enabling Capabilities factors, such as knowing how and being in the habit of doing EGB, as motives of *green* behavior (r = .24, ρ = .26). Similarly, Enabling Capabilities were also endorsed as reasons for ungreen behavior avoidance (r = .19, ρ = .20), and were less likely to be cited as barriers for not engaging in green behavior (r = -.13, ρ = -.14). While Hypothesis 17 posited that Openness would be negatively related to a lack of knowledge, the observed relationship between the two was positive (r = .09, ρ = .11; Appendix H2). While individuals high on Openness were expected to be less likely to cite habit and personal preference as motives for EGB, they were actually more likely to cite these motives (r = .27, ρ = .33).

Openness was also meaningfully related to Extrinsic reasons for green behavior omission, ungreen behavior commission, and ungreen behavior avoidance (green

behavior avoidance *r* of -.20 and ρ = -.22; ungreen behavior commission *r* = -.10 and ρ = -.12; and ungreen behavior avoidance *r* = .12 and ρ = .14). The relationship between the facet of financial/cost considerations was consistent with the overall finding that Extrinsic reasons negatively correlated with ungreen behavior commission, supporting Hypothesis 16.

Reasons related to Image factors were more likely to be cited by Open individuals as motives for green behavior performance (*r* = .10, ρ = .11). This was the only quadrant of the four where the relationship was meaningful. Cultural norms were expected to be negatively related to Openness, however the relationship was positive and negligible (*r* = .03, ρ = .04 Appendix H1). Although the overall facet was negative, Open individuals reported that they were less likely to engage in green because of requirements (*r* = -.15, ρ = -.17).

The Aesthetics and Feelings facets, as well as the Actions facet, of Openness had some of the strongest and most consistent relationships with employee environmental sustainability motives. Similar to the trait level, the relationships were generally the strongest and most consistent with Prosocial motives, followed by Enabling Capabilities. While the relationship between the trait of Openness as a whole and Extrinsic motives for EGB was associated with a confidence interval that just overlapped with zero, the Openness to Aesthetics and Feelings facets were the only facets with CIs that did not overlap with zero (*r* = .19 and ρ = .23 and *r* = .12 and ρ = .14, respectively).

Agreeableness

The relationship between each of the facets of Agreeableness and motive facets were associated with confidence intervals that did not overlap with zero with the exception of the motives for ungreen behavioral avoidance. The personality facets of Agreeableness most strongly and consistently associated with the motives facets were Altruism and Tender-mindedness.

Agreeableness was consistently related to motives for EGB, including some factors that were originally not expected. As hypothesized, Agreeableness was associated with the Prosocial motives factor (r = .24, ρ = .25). Similarly, it was also positively related to ungreen avoidance motives, and negatively related to green behavior omission and ungreen behavior commission motives (rs of .16, -.34 and -.27, ρ = .18, -.37, and -.30, respectively). Agreeableness generally was most highly and consistently related to the Prosocial facet.

The second half of hypothesis 18 which predicted that cultural norms and public relations would be positively associated did not receive support. Although Agreeableness was not meaningfully related to the Image facet for employee green behavioral performance motives (r = .06, ρ = .06) and ungreen behavioral avoidance motives (r = .08, ρ = .08), it was negatively associated with the Image facet for green behavioral omission (r = -.16, ρ = -.18) and ungreen behavioral commission motives (r = -.10, ρ = -.12). In other words, Agreeableness was linked to Image reported as being less of a barrier to green behavior and motivating ungreen behavior. Contrary to Hypothesis 19, individuals high on Agreeableness were actually less likely to cite requirements as a

motive for green behaviors (r = -.19, ρ = -.21) or not meaningfully more likely to cite requirements as a barrier (r = -.06, ρ = -.07; Appendix H1).

Although not hypothesized, Agreeableness was associated with the Enabling Capabilities motive factor for green behavior performance and omission (r = .17 and ρ = .18; r = -.13 and ρ = -.14, respectively). Another relationship that was not hypothesized was that Agreeableness was also associated with the Extrinsic motives for green behavior omission and ungreen behavior commission (r of -.18, ρ = -.20; and r of -.09, ρ = -10, respectively).

Conscientiousness

While there were a number of hypotheses about different motives that would be related to Conscientiousness, these received only partial support. A number of the Prosocial motives were expected to correlate positively with Conscientiousness (Hypothesis 20). This received partial support, with Conscientiousness positively related to the Prosocial facet for green behavior avoidance (r = .12, ρ = .13). In contrast, the relationships observed for motives for green behavior performance, green omission, and ungreen commission were negligible. The relationship between Conscientiousness and the Enabling factor followed a similar pattern. Conscientious individuals were expected to have a number of tendencies related to diligence, competency, and self-discipline that would lead them to be more likely to cite Enabling Capabilities such as achievement drive, self-efficacy, and habit/personal preference (Hypothesis 22). While Conscientious individuals who did not engage in ungreen behavior were more likely to cite Enabling Capabilities as reasons for their ungreen behavioral avoidance (r = .14, ρ =.15), the

relationship between Conscientiousness and Enabling motives was not meaningful for motives of other types of behavior. An examination of the personality facets of Conscientiousness for ungreen behavioral avoidance indicates that the Achievement and Dutifulness facets were most highly correlated with the Prosocial and Enabling Capabilities factors, while self-discipline is less so (Table 56).

A positive relationship was expected between Conscientiousness and health, safety, and financial motives (Hypothesis 21), yet the relationships between the Extrinsic factor and employee green behavior performance (r = .02, ρ = .02) and the specific types of behavioral performance/avoidance were negligible. Examining the motive factors separately reveals that safety motives for ungreen behavioral avoidance were negatively related to Conscientiousness (r = -.14, ρ = -.16; Appendix H4), but not other behavioral quadrants, following a pattern similar to the Prosocial and Enabling Capabilities factors. While Hypothesis 21 also predicted that Conscientious individuals would be more likely to cite motives of requirement, cultural norms, and public relations, there was also no meaningful relationship between Conscientiousness and the Image factor across behaviors.

Extraversion

Extraversion was related to a number of motive facets across behavior performance and avoidance quadrants, although observed relationships were small. Extraverts were found to be more likely to cite Prosocial motives to a small extent (r = .10, ρ = .11). Hypothesis 23 predicted that the Prosocial motive, Social responsibility,

would be positively related to Extraversion, however the motive was not meaningfully related to motives for green or ungreen behavior.

Extraversion was meaningfully related to Image motives for employee green behavior performance (r = .10. ρ = .11) and ungreen behavior avoidance (r = .12, ρ = .12). In terms of specific Image motives for green behavior, Hypothesis 23 predicted that individuals high on Extraversion would be more likely to cite cultural norms and public relations. Only public relations was meaningfully related to Extraversion (r = .14, ρ = .15), while the correlation with cultural norms was not (r = .08, ρ = .09). Instead, the requirement motive also had a meaningful relationship with Extraversion (r = .14, ρ = .16) such that individuals high on Extraversion were more likely to cite requirement motives. The Extrinsic motive factor was not meaningfully related to Extraversion, including the Extrinsic motive of financial/cost considerations. This was contrary to what was hypothesized.

Extraverts were more likely to cite Enabling Capabilities as motives of green (r = .10, ρ = .11) and barriers to ungreen behaviors (r = .13, ρ =.14). Highly extraverted individuals were expected to be less likely to cite a lack of self-efficacy and lack of achievement drive as barriers to green behavior, but more likely to cite carelessness as a barrier (Hypothesis 24). However, these hypotheses failed to receive support. In the case of lack of achievement drive, Extraverts were actually more likely to cite a lack of achievement drive as a barrier to green behavior (green behavior avoidance; r = .12, ρ = .16), in addition to being more likely to cite a lack of knowledge (r of .15, ρ = .19).

Overall, the Extraversion facets of Warmth, as well as Positive Emotions, were most consistently related to employee environmental sustainability motives, most notably with the Prosocial facet. In terms of motives of ungreen behavior commission, Warmth and Positive Emotions were correlated -.14 and -.15 with Prosocial motives, respectively (ρ = -.16 and -.17; Table 55), indicating individuals high on these facets were less likely to cite a lack of Prosocial motives. Warmth was also associated with the Image factor. Enabling Capabilities for green behavior performance were associated with facets of Warmth, Activity, and Excitement Seeking, while Enabling barriers to ungreen behavior commission were related to Gregariousness, Assertiveness, and Activity.

Neuroticism

The two hypotheses related to Neuroticism received little support, with all of the relationships between the trait and motives facets having confidence intervals that overlapped with zero. Employees high on Neuroticism were expected to be more likely to cite a number of motives that comprise the Extrinsic and Image facets (i.e., health reasons, safety reasons, public relations, cultural norms, and requirements) as reasons for engaging in green behavior, however Hypothesis 25 did not receive support. The relationship between Neuroticism and the Extrinsic and Image factors was actually negligible across green and ungreen behavioral quadrants (ranging from *r* of -.04 to .04, ρ = -.05 to .04).

It was also hypothesized that individuals would be more likely to cite apathy and a lack of carelessness as barriers to green behavior. Contrary to the hypothesis, the higher order Prosocial factor was not related to Neuroticism for green behavior omission (*r* =

.00, ρ = .00) and the other behavior quadrants (*r* ranging from -.02 to .01, ρ = -.02 to .01). Similarly, employees high on Neuroticism were expected to be less likely to cite availability and more likely to cite a lack of self-efficacy as barriers (Hypothesis 26). On the whole, Neuroticism was not meaningfully related to Enabling Capabilities factor as motives for green behavioral omission. When examined by motive category, Neurotic individuals were more likely to cite self-efficacy as a motive of green behavior omission (*r* = .15, ρ = .19; see Appendix H2) which is consistent with Hypothesis 26. Neurotic individuals were actually also more likely to cite lack of availability as a motive of green behavior omission (*r* = .09, ρ = .11), contrary to the hypothesis.

Although at the trait level there were no meaningful correlations between Neuroticism and motive factors, a few facets had 90% confidence intervals that did not overlap with zero, although observed relationships were still small. For instance, the facet of Angry Hostility was negatively related to Prosocial motives for green behavior performance and positively related to Prosocial motives for ungreen behavior (*r* = -.12 and ρ = -.15 and *r* = .10 and ρ = .12, respectively). In other words, individuals high on Angry Hostility were less likely to be driven to perform EGB to help the environment and others, and more likely to engage in ungreen behavior due to a lack of interest in helping the environment and others. Individuals high on Impulsiveness were more likely to cite Enabling Capabilities as barriers to green behavior (green behavioral omission) and as motives of ungreen behavior commission (*r* of .11 and .10, ρ of .14 and .13, respectively).

Correlations between Environmental Sustainability Motives and Employee Green Behavior

Next, the relationships between the environmental sustainability motives and the Green Five factors of behavior were examined in order to evaluate hypotheses about differential relationships with the Proactive and Reactive motives factors and multifinality. Appendix I1 through I4 contain the means and standard deviations for each motive category by all of the employee green behavior items that were administered. Tables 61 through 64 display the correlations between environmental sustainability motives and employee green behaviors. The following results describe the degree to which multifinality was observed with environmental sustainability motives.

Environmental sustainability motive factors for green behavior performance and the employee green behavior factors were moderately correlated (Proactive behaviors range: r = .38 to .45, ρ = .48 to .55; Reactive behaviors r = .27 to .39, ρ = .33 to .47; Table 61). The magnitude of the correlations varied across motive factors to a small extent, but this variation was not meaningful. Inconsistent with theories of multifinality, the overall ESMS - Long Form was correlated as highly as some of the higher observed relationships for the motive factors with EGB (r = .46, ρ = .52). The ESMS Long Form and Short Form were both more highly associated with Proactive than Reactive behaviors with non-overlapping confidence intervals (ESMS-LF – Proactive behavior r = .48, ρ = .59; ESMS-LF – Reactive behavior r = .37, ρ = .45). Variation across the two dimensions of Green behavior by motive factor is discussed below. The motive factors were

correlated about equally with the Employee Green Behavior Checklist and the measure of Eco-reputation (Range: r = .34 to .47; ρ = .38 to .53).

Motives for green behavior commission had relationships ranging from r of -.21 to -.39 (ρ = -.26 to -.48) with Proactive behaviors and r of -.27 to -.36 with Reactive behaviors (ρ = -.34 to -.44; Table 62). Again, contrary to multifinality, the overall ESMS - Long Form was correlated to a similar extent as the motive factors with EGB (r = -.42, ρ = -.48). There were no meaningful differences between Proactive and Reactive factors correlating with motive factors or the overall ESMS scales.

Observed correlations between motives and green behavior were the weakest for ungreen behavior commission motives, although they were still sizable relationships (r ranging from -.15 to -.34, ρ = -.18 to -.41; Table 63). The overall motive scale for ungreen behavior was correlated -.31 with the EGB Checklist (r = -.34, ρ = -.35). While the overall scale correlated more highly with the Reactive facet than Proactive behaviors, confidence intervals just overlapped. Extrinsic and Image motives were more negatively correlated with the EGB scale than Eco-reputation.

Lastly, the least amount of variance between motive factors and the two types of EGB was observed for ungreen behavior avoidance motives (ranges of r = .34 to .47; ρ = .42 to .49), and EGB was correlated with the overall motives scale to a similar extent (r = .47, ρ = .53; Table 64). There were no meaningful differences across motives factors or between proactive and reactive factors.

Prosocial Motives

Prosocial motives were linked to both Proactive and Reactive EGBs. Prosocial motives were associated with being more likely to engage in EGBs (Proactive r = .44, ρ = .54; Reactive r = .36, ρ = .43; Table 61). Although Prosocial reasons were more likely to be associated with proactive green behavior, the confidence intervals for the corrected correlation coefficients overlapped indicating this relationship was not meaningful. Hypothesis 27 was supported, as there was no meaningful difference between the extent to which environmental reasons were cited for EGB across factors (Appendix J1). Hypothesis 30 also received support, which predicted that the Reactive factor would be associated with altruism and social responsibility. While these motives were also important for Proactive behaviors, they were not more strongly correlated with proactive behaviors in contrast to Hypothesis 36. Altruism was less important for Reactive factors, although not meaningfully so.

Similarly, there was no difference in the extent to which the Prosocial motive factor was linked to Proactive and Reactive behaviors for green behavioral omission (rs = -.32 and -.30, ρ = -.38 and -.37, respectively; Table 62). This supports Hypothesis 28 which predicted that there would not be a difference in the extent to which Apathy was cited as a barrier to EGB across factors (Appendix J2). Carelessness also not any more strongly correlated with either green behavior factor, in contrast to Hypothesis 31 which predicted that it is would be more highly correlated with reactive behaviors.

Although Prosocial motives did not have meaningfully different relationships with proactive and reactive behaviors for green behavior performance and omission, there

were meaningful differences for ungreen behavior commission (Table 63). Fewer Prosocial motives were associated with reactive behaviors (r = -.31, ρ = -.38) to a greater extent than proactive behaviors (r = -.17, ρ = -.21; 90% CIs do not overlap). In other words, employees who reported engaging in ungreen behavior were also more likely to cite fewer Prosocial motives particularly for reactive behaviors, indicating that they were more apathetic and less likely to be motivated by helping the environment and others.

Enabling Capabilities Motives

With respect to Enabling Capabilities for EGB, participants were only slightly more likely to cite Enabling Capabilities as motives for Proactive (r = .45, ρ = .54) compared to Reactive behaviors (r = .39, ρ = .47; 90% CIs overlap). Similarly, the Enabling Capability of Habit/personal preference was cited to a similar extent across Proactive and Reactive factors (Appendix J1), supporting Hypothesis 29.

In terms of Enabling Capabilities for not engaging in green behavior (green behavior omission), Hypothesis 32 predicted that individuals citing a Lack of availability, Lack of self-efficacy, and a Lack of knowledge would be less like to perform Reactive behaviors compared to Proactive behaviors. While the effect for Enabling Capabilities was in the expected direction, the difference was negligible (Reactive r = -.35, ρ = -.42; Proactive r = -.39, ρ = -.48).

Lack of achievement drive, Lack of knowledge and a Lack of self-efficacy also were expected to be barriers more highly associated with Proactive behaviors relative to other motive categories (Hypothesis 36). This hypothesis received partial support. Citing Enabling Capabilities more frequently was associated with fewer green behaviors (r =

-.39, ρ = -.48) than other categories, but correlation was only meaningfully higher than the relationship between Extrinsic motives and proactive EGBs (r = -.26; ρ = -.26). In other words, Enabling Capabilities motives were more strongly related to not doing green behavior than Extrinsic considerations. Of the three motives, the largest relationship was observed with the Lack of achievement drive cluster, although this difference was also not meaningful (Appendix J4).

Extrinsic Motives

Motives comprising the Extrinsic motives (Financial/cost considerations, Health reasons, and Safety reasons) were expected to be more highly linked to Reactive employee green behaviors compared to Proactive green behaviors (Hypotheses 33 and 34). These hypotheses failed to receive support, and the observed effect was actually in the opposite direction with the Extrinsic factor more highly correlated with the Proactive factor (Proactive r = .38, ρ = .48 90% CI = .41 to .55; Reactive r = .27, ρ = .33; 90% CI = .25 to .41). Confidence intervals for both relationships just overlapped. Extrinsic motives for proactive *ungreen* behavior commission were more highly correlated with reactive behaviors (r = -.31; ρ = -.38) compared to proactive behaviors (r = -.31; ρ = -.38; 90% CIs did not overlap). The more Extrinsic motives are endorsed as reasons for engaging in ungreen behaviors, the less individuals are to engage in proactive green behaviors.

Image Motives

All of the motives that loaded onto the Image factor were expected to be linked to Proactive EGBs to a greater extent than Reactive behaviors, including Requirement, Public relations, Cultural norms, and Self-image motives (Hypotheses 37 and 38).

Individuals were more likely to cite Image considerations as motives to proactive than reactive behaviors (Proactive r = .45, ρ = .55, 90% CI = .48 to .61; Reactive r = .31, ρ = .38, 90% CI = .30 to .46), and the confidence intervals associated with the correlations did not overlap providing some support for the two hypotheses. In terms of each individual motive, only the correlation associated with self-image had a confidence interval that did not overlap across the two EGB factors which partially supports Hypothesis 38.

Hierarchical Regressions

Hierarchical regressions were performed to examine how well personality predicts employee green behavior, as well as the incremental validity offered by the motive factors. Four regressions were run with four different criteria: overall employee green behavior as measured by the 36-item Employee Green Behavior Checklist, the Proactive and Reactive green behavior factors, and the Eco-reputation scale. The hierarchical are presented in Table 65.

As a set, the Big Five personality traits produced a modest multiple correlation with employee green behavior. The multiple R was .11 and adjusted R^2 was .02. Results were similar for the major factors of green behaviors. The multiple R was .07 and adjusted R^2 was -.01 for the Proactive factor and the multiple R was .13 and adjusted R^2 was .00 for the Reactive factor. Personality was more potent in predicting eco-reputation with a multiple R of .42, and adjusted R^2 of .17.

Across all hierarchical regressions, motives were better predictors of employee green behaviors than personality variables. The extent to which individuals cited motive

factors offered incremental prediction above the Big Five personality traits. This incremental validity was fairly consistent across behavioral quadrants. Environmental sustainability motives were most predictive of overall employee green behavior when asked in the context of green behavior performance, green behavior omission, and ungreen avoidance (multiple *R* ranging from .46 to .48; adjusted R^2 ranging from .19 to .23; ΔR^2 ranging from .20 to .22). Potency for predicting employee green behavior was reduced when asked in the context of ungreen behavior commission (multiple $R = .36$; adjusted $R^2 = .10$; $\Delta R^2 = .12$).

There was some variation in the extent to which motives predicted proactive and reactive factors. Environmental sustainability motives were more potent for proactive employee green behaviors compared to reactive behaviors for behavior performance. With respect to green behavior performance, the multiple R for proactive behavior was .50 (adjusted $R^2 = .24$) compared to a multiple R of .41 for reactive behaviors (multiple $R^2 = .15$). In addition, environmental sustainability motives for ungreen behavior commission better explained reactive behaviors compared to proactive behaviors. For ungreen behavior commission, the multiple *R* for predicting proactive behavior was .27 (adjusted $R^2 = .05$), and .39 for reactive behaviors (adjusted $R^2 = .12$). The amount of incremental prediction was similar for proactive and reactive factors in the context of green behavior omission and ungreen behavior avoidance. The change in R^2 was .17 for both factors in the context of green behavior omission. For ungreen behavior avoidance, the change in R^2 associated with proactive and reactive behaviors was .19 and .18, respectively.

Discussion

Structure of Environmental Sustainability Motives

Environmental sustainability motives appear to have a relatively stable four-factor structure across behavior quadrants (green behavior performance, green behavior omission, ungreen commission, and ungreen avoidance), as well as across behaviors in terms of how the motives loaded onto the four factors. The exploratory factor analyses resulted in four similarly interpretable factors across behavior categories: Prosocial, Enabling Capabilities, Extrinsic, and Image factors. The ESMS also had acceptable internal reliabilities for each of the subscales. The motive categories included in the ESMS were derived from interviews conducted within the U.S., with the applicability of the taxonomy to European contexts confirmed (Study 1). As such, the motive items administered were tailored to workplace settings and represented a wide range of motives for EGB.

While the structure of the motives is somewhat similar to other taxonomies in non-workplace settings, there are key differences as well. Although previous work has conceptualized environmental concern as three factors related to biospheric, social-altruistic, and egoistic values (Schultz, 2001; Stern and Dietz, 1994), these categories are not refined enough to understand each factor and its components. The findings of this study suggest that tendencies to want to help the environment, others, and future generations load onto a Prosocial factor. This may be due to representing a wider range of motives, or could be a function of examining motives within workplace settings. Similar to the Egoistic values, motives serving health, safety, and financial/cost considerations

comprised a factor that was labeled the Extrinsic factor. In addition, an Enabling Capabilities factor representing a number of reasons why employees cited engaging or not engaging in green behavior, such as availability and convenience of green options, and their personal habits, preferences, knowledge, and drive. Lastly, functions related to Image comprised a final factor, which encompassed impression management related to how individuals are viewed within the workplace, including public relations, cultural norms, requirement, and self-image.

The categories that emerged in this study are somewhat similar to Rioux and Penner's motives for OCBs which included a Prosocial Values, Impression Management, and Organizational Concern. The ESMS motives had a Prosocial factor and an Image factor which corresponded to Impression Management and also encompassed Organizational Concern. However motives for EGB also included Extrinsic motives and Enabling Capabilities motives. The structure of motives for EGB is also similar to motives from research on environmental volunteering, although the content is wider in scope, and reflects motives relevant to workplace settings. The three motive factors that the Ryan et al (2001) and Bramtson et al. (2011) studies had in common were helping the environment, learning, and social benefits. The present study resulted in a broader conceptualization of helping the environment, expanded to helping the others, as well as the environment. The learning component of the volunteering studies would fit in with the Enabling Capabilities facet more broadly, although in the workplace the emphasis is more on knowing how to do the behavior and the knowledge an individual already has. The Enabling Capabilities facet also includes a number of other support systems and

factors related self-efficacy and achievement drive. The social component was reflected in Image component, although within the workplace it is related to the image a person projects at work, how they represent their organization, and requirements. These previous motive taxonomies did not include an Extrinsic factor, in terms of the health, safety, and financial functions that EGB can serve.

Previous work using an earlier version of the motives scale used in this study found five barriers to employee sustainable purchasing (Klein et al., 2012). These included a lack of support, lack of concern, difficulty and inconvenience, financial considerations, and quality considerations (e.g., health, safety, quality considerations). The main differences between these factors and the factor analytic results from this study are that the last two factors (financial considerations and quality considerations) collapse into a factor representing Extrinsic concerns more broadly. Also, lack of support and difficulty/inconvenience motives loaded onto a broader Enabling Capabilities factor, while a factor related to Image also emerged. However, the purchasing study was conducted in a single organization where certain factors, such as having the same purchasing system, could have contributed to the factors that emerged.

The motive factors that emerged in this study were also similar to how motives were organized along Deci and Ryan's (2000) self-determination continuum in Study 1 (Figure 2). In terms of motives for green behavior performance, environmental benefit, altruism, and social responsibility motives comprised a Prosocial factor. The categories expected to align with Extrinsic motives split into two categories, one related Image, including requirement, cultural norms, public relations, and self-image, as well as one

category labeled Extrinsic (health, safety, and financial/cost considerations). Lastly, amotivation categories served to drive green behavior by employees feeling they possessed Enabling Capabilities to engage in EGB, as well as inhibit green behavior given amotivation tendencies. Although future research is needed on the extent to which the factors from this study are linked with Intrinsic, Extrinsic, and Amotivation more broadly, the self-determination continuum seems to be a useful organizing framework for environmental sustainability motives.

Motives of Employee Green Behavior

This study identified the most important motives and barriers to green and ungreen employee behavior. It improved on frequencies provided in Study 1 given that instead of relying on participants to provide the reason(s) to different green behaviors, participants indicated the extent to which each motive influenced a set group of behaviors.

Awareness of the similarities and differences across behavioral quadrants can be utilized to help shape organizational interventions. The top six motives included all five of the Enabling Capabilities motives for EGB, as well environmental benefits of green behavior. Although the order of importance was different, the same six motives were among the top six as reasons for ungreen behavior avoidance. For these behaviors associated with positive environmental outcomes, employees reported sustainable habits, self-efficacy, drive, and other Enabling Capabilities as important factors. This is consistent with findings that some of the most effective interventions are cognitive dissonance, goal setting, and social modeling (Osbaldiston and Schott, 2012). They are

likely effective due in part due increasing pro-environmental habits, self-efficacy, and achievement drive. Given the importance of Enabling Characteristics, as well as environmental motives, organizations may want to consider measuring these factors when hiring for green positions or jobs.

In contrast to motives for green behavior and ungreen avoidance, there are fewer barriers to target for behaviors that have a negative impact on the environment. Both green behavior avoidance and ungreen behavioral commission were associated with three barriers that were cited most frequently. For green behavior omission these barriers were a Lack of Availability, Lack of achievement drive, and Habit/personal preference. The first two motives along with a Lack of knowledge were the most highly cited motives of ungreen behavior avoidance. However, while a focus of knowledge interventions is often on prompting behavior or providing information about how to do green behaviors, these interventions are only most effective when behaviors are relatively convenient (cf. Steg & Vlek, 2009), or when other Enabling Capabilities have been addressed.

The top three motives of ungreen behavior commission were identical across the Study 1 and Study 3 (Lack of Availability, Lack of achievement drive, and Habit/personal preference). Although the frequency of motives for green behavior performance was fairly consistent across studies, there are a couple of notable differences. First, in Study 1 (Sample 2) not all of the Enabling Capabilities were among the highest rated, although several, such as Habit, personal preference and Availability were. These other Enabling Capabilities (i.e., achievement drive and self-efficacy) may be less tangible and notable, and as such were not as likely to be spontaneously

mentioned by employees. Second, Financial/cost considerations was the second most cited motive in Sample 2, but rated as one of the lowest motives in this study. Again, the difference in research designs could account for the discrepancy. Another possibility is that students in this sample may have had fewer opportunities to be involved in behaviors that could affect cost savings and as such it was not a function served by their EGB. Future replications should examine the generalizability of these findings.

In this study and Study 1 (Sample 2), the most highly ranked motives were a Availability, Lack of achievement drive, and Habit/personal preference. The motives for ungreen behavior avoidance in this study were also very similar: Availability, lack of knowledge, and Lack of achievement drive.

Sex Differences in Environmental Sustainability Motives

As hypothesized, women were more likely to cite Prosocial motives of EGB. This is consistent with the findings from the meta-analysis in Study 2, where two studies found that on average women were more likely to cite social responsibility as a motive than men in non-workplace settings. In addition, men were more likely to cite Prosocial motives as barriers to green behavior (green behavior omission). They were more apathetic about environmental and other prosocial issues compared to women. These findings are also consistent with past empirical work finding that women are more likely to value and be concerned about specific environmental issues (Davidson & Freudenburg, 1996; Mayer and Frantz, 2004), rank the value of altruism higher (Dietz, Kalof, & Stern, 2002), donate to workplace charities (Leslie, Snyder, & Glomb, 2013), and consider future consequences (Lindsay & Strathman, 1997). Women also tend to score higher on

the personality trait of tender-mindedness (Costa, Terraciano, & McCrae, 2001), which was positively associated with a majority of the motive factors for EGB in this study.

Women were also more likely to be driven to engage in green behavior and have a number of other Enabling Capabilities that supported and motivated their EGB. This was consistent with Study 2's initial meta-analytic findings regarding women having greater self-efficacy with regards to pro-environmental behavior. While men were expected to be more likely to cite availability and convenience as a motive, women actually cited this more often, most likely because they already are more inclined to engage in green behavior and so having an option that is available and convenient facilitates this behavior. Women were also expected to be more likely to cite a lack of knowledge as a barrier to EGB given some initial evidence they may be more likely to cite this as a barrier (Guagnano & Markee, 1995). This hypothesis did not receive support, although the effect size was in the expected direction. Given the meta-analytic findings from Study 2 that show that sex differences in declarative knowledge seem to be reducing over time, it would make sense for women to also be less likely to indicate knowledge as a barrier over time.

Two motives for EGB that had been previously unexamined were sex differences in health and safety. Women were expected to be more likely to provide health and safety reasons given their tendencies to be more risk adverse (Byrnes, Miller, & Schafer, 1999) and concern about the risk-related environmental issues and the effects on health and well-being than men (Blocker & Eckberg, 1997; Bord & O'Connor, 1997; Davidson and Freudenburg). This study found that there were not meaningful differences in terms of

green behavior performance, although the relationship was in the expected direction. Women were, however, more likely to cite safety motives for ungreen behavioral avoidance. This could be due to women viewing ungreen behaviors as more harmful such that they are more likely to go out of their way to avoid having a negative impact on safety.

While men were expected to be more likely to cite financial/cost considerations as motives of EGB given theoretical and empirical work suggesting about men being more likely to be focused on the marketplace and economic growth (Beutel and Marini, 1995; Eagly & Wood, 1991; Gilligan, 1982), women were actually more likely to cite these as motives to EGB. This is in contrast to the findings from Study 2, where there were no sex differences in financial motives. This could be due to sampling error, or may indicate that in workplace settings women are more likely to engage in green behavior due to financial considerations. More research examining the generalizability of this finding is needed.

In terms of Image motives, women were more likely to cite cultural norms as expected. This is consistent with the two studies of pro-environmental behavior, where women were more likely to cite social norms. There were no observed sex differences on public relations and requirement, the two motives most relevant and unique to workplace settings. Although I had expected women to be more likely to cite requirements for engaging in EGB given their tendencies toward dutifulness, the lack of sex findings suggests that at work men and women are equally like to consider these. Also, given the findings from this study that Conscientiousness was not related to EGB expect for

ungreen behavior commission, Conscientious tendencies do not seem to be linked to EGB at work.

Personality

While many of the hypotheses related to personality and motives for employee green and ungreen behavior, there were also many that did not receive support. This in part indicates how little was known prior to this study on the relationship between personality and motives, and highlights an original contribution of this study.

Openness

Not surprisingly, Openness and Agreeableness generally had the highest and most consistent relationships with motive factors. Individuals high on Openness were more likely to cite Prosocial motives as important reasons for their employee green behavior, reflecting open individuals' affinity toward nature and people and willingness to protect them (Olver & Mooradian, 2003; Roccas, Sagiv, Schwartz, & Knafo, 2002). In addition, it is also consistent with past research finding that Openness is positively associated with environmental values and concern (Hirsh & Dolderman, 2007; Hirsh, 2010; Markowitz et al., 2012; Milfont & Sibley, 2012). The facets of Openness to Aesthetics and Feelings were among the highest and most consistently linked to Prosocial motives, also supporting the idea that their tendencies to value nature and feelings of others drive Open individuals to engage in EGB.

While Open individuals were more likely to cite Enabling Capabilities as motives for green behaviors, they were also more likely to cite Enabling Capabilities as barriers to green behavior. Although it was hypothesized that individuals high on Openness would

be more likely to value and seek out information about the environment such that open individuals would be less likely to cite a lack of knowledge as a barrier, there was actually a positive relationship between Openness and citing a lack of knowledge. In addition, the only positive relationships for motives for ungreen were lack of knowledge and availability. This suggests that although open individuals are more likely to value the environment, they still run into common barriers of not knowing how to perform green behaviors or don't have access to convenient green opportunities at work.

Contrary to what was hypothesized, there was actually a positive relationship between Openness and the habit/personal preference motive. A negative relationship was expected given the tendency of open individuals to be less likely to conform. However, given that open individuals are more likely to value and be concerned about the environment, it is not surprising that they were actually more likely to habitually engage in EGB. Similarly, consistent with expectations, financial and cost considerations were less likely to inhibit green behaviors. Financial considerations were hypothesized to be less likely to be barriers to pro-environmental behavior given that Open individuals intrinsically value the environment.

Extrinsic reasons for EGB were negligibly related to the trait of Openness, although the specific facets of Openness to Aesthetics and Feelings were meaningfully linked to Extrinsic motives. While individuals high on Openness in general are not concerned about health, safety, and cost implications of green, people high on Aesthetics and Feelings may be because they are more aware of and concerned about the health of the environment and safety of others. The Extrinsic factor did have a sizable negative

relationship with the trait of Openness as a whole and *not* engaging in green behavior, indicating that Open individuals are less likely to consider extrinsic considerations as reasons for not engaging in green behavior. Employees do avoid green behavior due to Extrinsic reasons suggesting Open individuals may be more aware of implications for health, safety, and others costs of ungreen behavior.

Of the four motive facets, Image was least consistently related to Openness as it was only meaningfully related to motives for green behavior performance. While Image considerations were expected to not be related to Openness, and in the case of cultural norms were hypothesized to be negatively related, Open individuals did seem to be motivated by Image to a small extent. One possible explanation is that Open individuals may want to be seen as green individuals who appreciate the environment. Instead of feeling required to be green, they seem to act in accordance with their values.

Agreeableness

Similar to Openness, the trait of Agreeableness was associated with many of the motive categories and was most strongly correlated with Prosocial motives. This is consistent with past research finding that people high on Agreeableness tend to have greater empathy, concern for others, and willingness to set aside their own self-interests, with this broader sense of self linked to greater connectedness to nature, environmental values and concern, and green behaviors (Arnocky, Stroink, & DeCicco, 2007; Hirsh, 2010; Mayer & Frantz, 2004; Milfont & Sibley, 2012; Olver & Mooradian, 2003). Agreeable individuals are more drawn to pro-environmental behavior given their desire

to help others and the environment, rather than Extrinsic factors, such as requirements, and Image factors.

Highly agreeable people are also more likely to report more Enabling factors as motives of EGB, such as knowing how to perform the behaviors, being driven to engage in them, and preferring or being in the habit of doing so. Although this was not hypothesized, this relationship is not surprising. Green behavior seems to serve the function of allowing people high on Agreeableness to engage in behaviors that are meaningful to them.

Conscientiousness

Interestingly, Conscientious individuals were more likely to cite Prosocial and Enabling Capabilities motive factors as reasons for *not* engaging in ungreen behaviors, or ungreen behavioral avoidance. This, in conjunction with the findings about the specific facets, suggests that when Conscientious individuals refrain from ungreen behavior, they are driven by concern for prosocial issues and their tendencies toward achievement and dutifulness.

While Conscientious individuals seem to be motivated to not engage in ungreen behavior by Prosocial and Enabling facets, these are not meaningful factors with respect to green behavior performance (as well as green omission and ungreen commission). This variation may help explain in part why past findings about the relationship between Conscientiousness and environmental values and concern have been mixed (Hirsh, 2010; Hirsh & Dolderman, 2007; Markowitz et al., 2012). Conscientious individuals seem to be more motivated to "do no harm" to the environment (i.e., ungreen behavioral avoidance

such as avoiding polluting or littering) rather than driven to perform *green* behaviors due to Enabling and Prosocial factors. One potential explanation is that Conscientious individuals may see allowing ungreen behaviors to occur as a particularly reflective on their dutifulness and achievement, or lack thereof. Also, if Conscientious individuals do not see green behavior as something that is valued in their workplace, they may be less likely to engage in EGB or may instead exert their effort toward other endeavors but still feel compelled to avoid ungreen behaviors. A practical implication of these findings is that workplace interventions that frame behaviors as preventing or avoiding negative environmental impacts may be particularly effective for Conscientious individuals.

Conscientiousness was found to be unrelated to Extrinsic and Image factors. These findings are in contrast to research on health and safety-related behaviors (Bogg & Roberts, 2004; Christian, Bradley, Wallace, & Burke, 2009), where Conscientious individuals are more likely to engage in beneficial health behaviors and avoid risky ones. However, this may be due to different perceptions of risk across green and ungreen behaviors. For instance, while ungreen behavior often poses great risks to health (i.e., polluting), they can also have the potential to be safer or healthier (i.e., disposal of medical waste after a single use to prevent contamination). Larger correlations may be observed if these types of behaviors were examined separtely and would be an interesting question to explore further. Links to the environmental health and personal health and safety may also be less tangible than other types of health and safety risks, particularly within the workplace.

Extraversion

On the whole, the relationships between Extraversion and motives for employee green behavior were small, although there were a few notable relationships between Extraversion and motive factors. Extraversion had a small positive relationship with the Prosocial factor. This is consistent with past research showing that Extraversion has a small positive negative relationship with pro-environmental behavior (Markowitz et al., 2012). However, past research has also shown that Extraversion is negatively related to environmental concern (Hirsh & Dolderman, 2007; Markowitz et al., 2012) and negligibly related to environmental values (Markowitz et al., 2012; Milfont & Sibley, 2012; Wiseman & Bogner, 2003). Extraverts seem to be more motivated by helping others than the environment. Given that the Extraversion facets of Warmth and Positive Emotions are meaningfully related to Prosocial motives suggests that when Extraverts engage in green behavior they are motivated by the satisfaction they derive from helping others. Extraverts may also be less concerned about environmental issues given their tendencies toward positive affect and optimism, and thus less likely to see green behavior as a way to improve the environment.

Extraverts are slightly more motivated to perform green behavior and avoid ungreen behavior because of Image motives, and Warmth was again an important facet. Impression management related to sustainability seems to be important for Extraverts, particularly in the areas of projecting an eco-friendly image of their organization and meeting organizational requirements, as well as avoiding ungreen behaviors. The facet of Warmth was the only trait found to have a meaningful relationship with the Image facet.

Individuals high on Warmth are likely driven to do green because of the opportunities to interact with others and present their organization in a positive light.

Although the Enabling motives facet as a whole was not meaningfully related to Extraversion for green behavior omission, extraverts were more likely to cite a lack of knowledge, lack of achievement drive, and their own habits and personal preferences as barriers to green behavior. Similarly, Extraverts were more likely to cite Enabling Capabilities as barriers to ungreen behavior. While I expected the optimistic and ambitious tendencies of extraverts to make them less likely to cite a lack of achievement drive, they were actually more likely to cite these as barriers to green behavior. This may be because although extraverts are more optimistic and ambitious, they are not when it comes to engagement in employee green behaviors, a domain about which they are generally less concerned (Hirsh & Dolderman, 2007; Markowitz et al., 2012). Since extraverts are less concerned about the environment, they may also be less likely to acquire knowledge about the environment or seek out greener options. Extraverts' tendencies to be drawn toward other activities may also lead to habits or preferences that actually direct their attention and effort away from green behaviors. Interestingly, extraverted individuals who engaged in green behavior were actually more likely to cite Enabling Capabilities, suggesting that extraverts that do engage in green behavior feel more optimistic about their ability to perform the behaviors perhaps given tendencies toward activity and excitement seeking.

Neuroticism

All the correlations between Neuroticism and the motives of and barriers to green and ungreen behavior were negligible at the motives facet level. The null findings with respect to the Prosocial facet are consistent with findings that Neuroticism is not related to environmental concern (Markowitz et al., 2012). Although Hirsh (2010) theorized that neurotic individuals may be more likely to be concerned about the environment for egoistic reasons and I hypothesized that this might include health and safety motives for employee green behavior, there were no meaningful relationships between the trait and the Extrinsic factor. Since neurotic individuals are not much more likely to be concerned about the environment, it may be that the environment isn't particularly concerning compared to other, more proximal concerns. Green workplace behaviors may also be less directly linked to an individuals' health and safety compared to product choices and decisions made in household environments.

A number of other motives related to one's image (cultural norms, public relations, and requirements) were expected to be related to Neuroticism given that neurotic individuals tend to be more concerned about following social norms, projecting a positive image, and meeting workplace requirements. However, these motives were not linked to the trait, again likely given that individuals high on neuroticism do not seem to identify green behavior as something particularly concerning to them or are not valued enough by their organizations or others for them to care. The Enabling Capabilities facet was also not related to Neuroticism, although by examining the motive category level,

lack of self-efficacy was a barrier to EGB as expected given tendencies of Neurotic individuals to doubt themselves.

There were some interesting findings at the facet level for Neuroticism, although the relationships were small. People who were high on Angry Hostility seem to care less about helping the environment and others through green behavior and more likely to do ungreen behaviors out of a disregard for the environment and their impact on others. Individuals high on the Impulsiveness facet were more likely to cite Enabling Capabilities as barriers to green behavior (green behavior omission) and motives for ungreen behavior. This indicates impulsive people are more likely to face obstacles to green behavior from not having green options available and not being driven to seek them out, which is consistent with their impulsive tendencies. For instance, an impulsive person may be more likely to litter if they do not see a trash can readily available. Although effective on the whole, Interventions targeting Enabling Capabilities may be particularly beneficial for more impulsive individuals.

Environmental Sustainability Motives and Employee Green Behavior

Overall, environmental sustainability motives were moderately correlated with employee green behaviors. Although correlations across motive factors and between green behavior factors were fairly similar on the whole, several notable differences emerged.

Motives for green behavior performance were more highly correlated with the Proactive employee green behavior factor than the Reactive factor as measured by the long and short forms of the ESMS. All four motives factors followed this same pattern

with the proactive and reactive EGB factors, although the only meaningful difference was with the Image factor. The Image factor was more weakly linked to reactive behaviors than they were to proactive factors, suggesting that reactive green behaviors more broadly are not done to fulfill impression management functions. Employees may not see the dimensions of Conserving and Avoiding Harm at work as meaningfully contributing to goals related to Image, particularly relative to the Proactive factor. Work by D'Mello et al. (2011) might help explain this finding. The researchers found that a majority of company green behaviors are change-oriented proactive behaviors. This suggests that proactive behaviors may be more common, visible, and/or valued at the organizational level, potentially leading individuals to want to do EGB to be seen as contributing to organizational goals or to fit in with the culture of the organization.

Enabling Capabilities motives for green behavior omission were more negatively associated with proactive EGBs than Extrinsic motives. The more Enabling Capabilities individuals faced for green behavior omission, the fewer green behaviors they performed, which was a stronger relationship than that observed for Extrinsic barriers. Enabling Capabilities motives were expected to be a large barrier associated with fewer green behaviors than other barriers. This relationship was expected given that proactive behaviors require greater personal sacrifice in terms of the amount of time, effort, and difficulty and more knowledge typically required by Proactive facets such as Taking Initiative, Working Sustainably, and Influencing Others. Enabling Capabilities were also expected to serve as a barrier to reactive compared to proactive behaviors, however this hypothesis was not supported. Although Enabling Capabilities were expected to be easier

to perform and have lower costs associated with them in terms of time and effort, there may not have been a meaningful difference given that only people not engaging or rarely engaging in the behavior asked so these both types of behaviors may have been viewed as equally difficult.

The Prosocial and Image motive factors for ungreen behavior commission were more strongly linked with reactive factor than with proactive factor, while the other two motive factors followed a similar trend but were not meaningfully different. The more individuals endorsed extrinsic motives and not caring about prosocial factors for ungreen behavior, the less likely they were to have engaged in reactive ungreen behaviors compared to proactive behaviors. Health, safety, and financial motives appear to be more strongly linked to not engaging in ungreen reactive behaviors which is not surprising given that reactive facets of Conserving and Avoiding Harm may be seen as more directly linked to health, safety, and financial benefits than Proactive behavior facets such as Influencing Other and Taking Initiative behaviors which impact Extrinsic motives more indirectly.

Environmental Sustainability Motives as Predictors of Employee Green Behavior

Overall, environmental motives seem to predict employee green behavior well, such that the extent to which employees cite environmental motives helped predict how likely they were to engage in green behavior at work. As a set, the environmental sustainability motive factors were able to offer incremental prediction above and beyond the Big Five personality traits, as well as eco-reputation to a lesser extent. Motives did better in predicting green behavior than personality, which is not surprising given that

motives a more proximal determinant of behavior (Campbell & Pritchard, 1976; Campbell, McCloy, Oppler, & Sager, 1993; Kanfer 1991).

Similar to the correlations between motives and green behavior, there were some variations in incremental validity across motive quadrants and behavior factors. Motives for green behavior performance were more predictive of proactive behaviors than reactive behaviors. This could indicate that proactive behaviors are more conscious motivated actions, whereas reactive behaviors may be more automatic. Reactive behaviors such as Conserving could be more likely to operate subconsciously and be more easily primed (cf. Johnson, Chang, & Lord) causing individuals to be less aware of their specific motives for EGB.

On the whole, environmental sustainability motives for green behavior performance, green behavior omission, and ungreen behavior avoidance were consistently potent in predicting employee green behavior. Predictive power was moderately reduced for ungreen behavior commission for reactive factors. This is consistent with the observed correlations between proactive and reactive factors for motives in this quadrant. One potential explanation is that people may give less thought to why they engage in proactive ungreen behaviors. Commission of proactive ungreen behaviors could be more likely to occur because an employee was pursuing another goal unrelated to sustainability that resulted in ungreen behavior, potentially causing activation of a focal goal, while inhibiting other goal-irrelevant information (cf. Johnson et al., 2006; Shah, Friedman, & Kruglanksi, 2002). The motive categories in this study may not have been able to capture ungreen behavior commission adequately. For

instance, motives for ungreen behavior commission could be a poorer predictor if employees are more likely to have to do proactive ungreen behaviors as a part of their job duties, but don't necessarily consider it a requirement so fail to indicate a requirement. However, the effect should be interpreted with caution given that ungreen behavior was assessed with a smaller number of items than green behavior. More research is needed on the generalizability of this effect.

Multifinality

Together, the four factors comprising the ESMS Motives Scale – Long Form did not correlate meaningfully higher with employee green behavior than any of the four motive factors across quadrants after corrections were made for unreliability. This fails to support that more valued or multifinal means are associated with increased engagement in employee green behavior. The similar relationships across motive categories suggest that performance of green behavior is achieved regardless of the extent to which individuals are influenced by multiple overarching motive factors. Instead, any one single motive factor seems to drive an individual toward performing EGB. This observed effect could be described as equifinality of motives, or that any one of a number of multiple motives can lead to the same end (performance of green behavior). However, more research is needed on this effect since the failure to lend support to multifinality theory could be due to a number of reasons. First, the conditional responding by behavior quadrant may have affected the ability to detect multifinality effects. Since people responded to motives items where for behaviors they typically engaged in, this likely resulted in less variance in scores than if all respondents who rarely did the behavior also

indicated why they engaged in the behavior. Second, the focus of multifinality research often is on activity preference, with a common study paradigm involving a choice between behaviors, one of which can fulfill multiple motives compared to a behavior that fulfilling only one goal (Kruglanski et al., 2012). Future research should examine green behavior in this context, as well as in multiple goal settings where employees must decide how to allocate resources between green goals and more traditional goals related to job performance.

One interesting finding that emerged is that performance of proactive green behaviors was more strongly associated environmental sustainability motives than reactive behaviors. The findings could indicate that the more an individual values or perceives multifinal ends to EGB, the more likely he or she will be to engage in proactive behaviors compared to reactive behaviors. Proactive behaviors seem to involve a greater commitment to and internalization of values related to green behavior, as well as foresight and planning, while reactive behaviors may be more easily primed or subconsciously activated (cf. Johnson, Chang, & Lord).

Interestingly, the reactive and proactive factors of employee green behavior are analogous to the evolution of environmental management at the company level investigated by Jabbour and Santos (2006). After an initial stage of mere compliance, organizations typically are avoidance-focused, utilizing materials more efficiently and engaging in actions to prevent harm to the environment (i.e., preventing pollution and ensuring proper waste disposal). The final stage, often referred to as the proactive stage, is when the organization fully internalizes the need to be green and takes voluntary

actions in anticipation of future issues pertaining to the environment. Further examination of the proactive and reactive factors of employee green behavior would be an interesting avenue for future research, particularly in relation to multifinality, goal orientations, and multiple goal pursuit.

Limitations, Strengths, and Future Directions

The present study improved upon past research by examining a wider range of pro-environmental and employee green behaviors than past studies. It also represented a wider range of jobs than the only known study conducted on workplace motivation for EGB (Klein et al., 2012). However, while this study looked at employee green behaviors, it did so utilizing a sample of students with work experience. While these students had worked for an average of over three years, and on average had a number of different work experiences (over an average of working with three companies), students typically work fewer hours on average, take on more temporary positions (i.e., summer jobs), and may not be in their established career field. Of the analyses conducted, this may be most likely to affect the examination of motives and Green Five behavior dimensions since the general working population would spend more time at and have more responsibility at work, which might affect the extent to which they're involved in different types of green behaviors. In addition, females were overrepresented in the sample. There were 115 males in the sample, which was slightly reduced within different motive categories given the conditional formatting. As such, the future research is needed to examine the generalizability of the results to the general population of employees, particularly in relation to the sex differences in motives and the relationships between

motives and Green Five categories. However, one advantage of using the student sample is that they may have been more likely to respond honestly about their green behavior and motives for EGB at work.

Similar to research on attitudinal and dispositional variables, and behavioral research more broadly that is often measured by self-report, common method variance may lead to spuriously higher correlations between constructs (cf. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Given that this study relied on self-report, common method variance may have been a factor, leading to higher correlations between motives and behavior. A measure of eco-reputation, or how individuals believe they are viewed by and compare to other in terms of environmental sustainability, was meant to provide a measure of sustainability relative to others. Environmental sustainability motives accounted for a similar amount of variance in eco-reputation and self-reported green behaviors, with the ESMS factors accounting for somewhat more variance in eco-reputation than green behavior. This variation also suggests that individuals did not consistently rate themselves highly on all sustainability dimensions. Common method variance would pose the greatest threat to inflating relationships between motives and behavior. Relationships between personality and motives, as well as sex differences in motives, included many relationships associated with confidence intervals that included zero. While it is almost impossible to measure why an individual engaged in a behavior without self-report, future research should focus on obtaining other ratings of EGB in order to reduce common method variance to provide a better estimate of the relationship between EGB and employee environmental sustainability motives. It is possible that with

error due to a common method reduced, the factor analytic solutions might be cleaner because there would be more differentiation between factors.

Future research administrations of the ESMS-LF should also be used to conduct a confirmatory factor analysis to assess the extent to which the four factor solution fits the data. Temporal stability of the ESMS should also be examined. The motives scale should be administered to the same participants at two different times, several months apart, in order to examine the test-retest reliability of the scale and determine the extent to which individuals' self-reported environmental motives are stable over time. This research would help establish additional psychometric properties of the scale.

Given the number of motives associated with EGB, and the goal of examining reasons for both engaging and not engaging in green and ungreen behavior, items in this study were adaptively administered to be able to examine motives for each behavioral quadrant (green behavior performance, green behavior omission, ungreen behavior commission, and ungreen behavior avoidance). A number of interesting relationships emerge that may have been masked by simply looking at motives for EGB alone. For instance, while Conscientiousness was unrelated to motives for green and ungreen behavior, there was a small positive relationship between Conscientiousness and Prosocial and Enabling Capabilities motives for ungreen behavior avoidance, suggesting that Conscientious individuals are more motivated to refrain from ungreen behavior that would have negative impacts.

Further research on other constructs and moderators of observed relationships could be explored with future research. For instance, an organization's sustainability

culture and climate have the potential to impact how green behaviors are viewed and be a moderating factor for some of the observed relationships between personality and green. For instance, in a green organization, Conscientious individuals may be more likely to engage in EGB because it is a way to display competency at work, whereas if green not seen as valuable within an organization, Conscientious individuals may be less likely to value these behaviors, particularly in the face of competing workplace demands.

This study makes valuable contributions to understanding motives for EGB at work in terms of beginning to construct a nomological network around environmental sustainability motives and a number of related constructs. The primary aim of this study was to examine why people engage in employee green behavior at work, the structure of these motives, and how they relate to other constructs such as behavior, personality, and sex. A better understanding of these relationships was achieved, including identifying four motive factors, sex differences in motives for EGB, and the personality traits and facets associated with different types of EGB. As discussed throughout this section, additional research on the psychometric properties of the motives scale, examining how motives predict other-reports of EGB, and examination of the generalizability of findings are important next steps in furthering this research.

General Discussion

The purpose of this dissertation was to examine and assess employee motives and barriers to employee green behavior and build a nomological network around environmental sustainability motives. The goals were to establish a taxonomy of motives to employee green behavior (Study 1), examine sex differences in motives and motivationally-relevant criteria by conducting a meta-analysis of the literature (Study 2), and create a scale for assessing employee motivation for green behavior to be able to examine the structure of motives and start building a nomological net for environmental sustainability motives in relationship to sex, personality, and employee green behavior (Study 3).

Taxonomy of Motives for Employee Green Behavior

In Study 1, a comprehensive taxonomy of employee motives for green behavior was developed through interviews with U.S. employees. This taxonomy included 16 categories that were found to be replicable in U.S. and European settings. These motives were able to be organized according to intrinsic, extrinsic, and amotivation clusters (Deci & Ryan, 2000). Motives that were particularly relevant to workplace settings included public relations and requirement. Similar to performance of other types of behaviors, this study found that environmental behaviors serve multiple functions within workplace settings (Carver & Scheier, 2000; Clary et al., 1994). As such, there are multiple motives that can be targeted when planning interventions to increase employee performance of green behaviors or decrease ungreen behaviors in organizations desiring to be more environmentally responsible. The categories identified in Study 1 formed the basis of a

scale constructed in Study 3 to measure and assess these motives in relation to other constructs within their nomological network.

Sex Differences in Motivation and Motivationally-relevant Criteria

Study 2 first examined sex differences as one variable expected to be related to motivation and motivationally relevant criteria. Past studies on pro-environmental behavior and its determinants were meta-analyzed to better understand sex differences in pro-environmental behavior and implications for the workplace. Findings suggest that women are more concerned about specific environmental issues. While women were also more likely to engage in general green behavior, this finding did not generalize except for Avoiding Harm behaviors (and Conserving behaviors within US samples). Higher levels of concern about specific environmental issues may lead women to be more likely to try to avoid behaviors that harm the environment. Female employees may be particularly interested in job tasks or roles that focus on avoiding, mitigating, or offsetting environmental impacts of business activities that harm the environment.

The literature on motivation for pro-environmental behavior also suggests that women are more likely to be influenced by social norms, feelings of social responsibility, and self-efficacy when performing pro-environmental behavior. However research on the topic of motivation was sparse compared to other variables. This meta-analysis highlights the need for more research on sex differences in environmental sustainability motivation, as well as research measuring motivation for green behavior more broadly.

Women's greater concern and motivation for the environment may be affected by environmental knowledge given that women had lower levels of environmental

knowledge compared to men. This sex difference in environmental knowledge was one of the most reliable effects in the study, although this sex gap in environmental knowledge appears to be diminishing over time. As women become more knowledgeable about the environment they may be better prepared and more likely to act on their environmental concern and motivation. Workplaces should help facilitate acquisition of environmental knowledge, and may want to contribute to or join recent efforts by the federal government to make materials and information about green jobs available to women.

Structure and Nomological Network of Employee Environmental Sustainability Motives

Motive Structure

Employee green behavior helps serve a broad range of functions at work, with motives classified under sixteen categories ranging from financial considerations to safety reasons to public relations motives. The results of Study 3 demonstrate that the motive taxonomy can be organized into four similarly interpretable factors: Prosocial motives, Enabling Capabilities, Extrinsic motives, and Image motives. This organization of the motives by factors can help lend parsimony to future research on motivational determinants of EGB. The Prosocial motive factor represented a desire to help the environment and others in the context of green behavior performance and ungreen avoidance, while in the context of green behavior omission and ungreen behavior commission it involved a lack of Prosocial motives as well as apathy and carelessness. The Enabling Capabilities motive factor includes considerations of availability and

convenience, and personal habits and beliefs about one's ability to perform the behavior. The *Extrinsic* motive factor represents the ability of green behavior to fulfill other functions for employees, such as the safety, health, and financial benefits. Lastly, the *Image* factor serves the function of impression management at work, particularly with respect to motives related to public relations, cultural norms, and requirement. With minor differences, these motive categories were found to be applicable to green behavior performance and omission and ungreen behavior commission and avoidance. In other words, the same four motive factors were found to describe the underlying structure of environmental sustainability motives, even though the specific content of each category was appropriately different to reflect engaging or not engaging in green/ungreen behavior.

The motive factors that emerged from this investigation were similar to, but notably different, from other motive frameworks. The three motive factors identified by Rioux and Penner (2001) for organizational citizenship behaviors were Prosocial Values, Impression Management, and Organizational Concern. The first two factors were similar to the Prosocial and Image factors identified in the present investigation, however organizational concern considerations, such as contributing to positive public relations for the organization, were subsumed by the Image category. In addition, extrinsic considerations such as health, safety, and financial/cost considerations comprised a factor in the present study. Lastly, Enabling Capabilities fulfilling agency and esteem goals (i.e., self-efficacy and achievement drive) were among the most important motives of EGB, as well as barriers. Relationships among environmental sustainability motive factors were

somewhat higher than expected, particularly compared to other studies examining motives for work performance (Rioux & Penner, 2001).

Sex Differences in Employee Environmental Sustainability Motivation

The Environmental Sustainability Motives Scale created in this study was then used to examine sex differences in employee motives. This was the first study to comprehensively explore sex differences across a full set of motive factors. In this sample of employed students, sex differences in motivation appeared to be more pronounced, particularly for green behavior performance where women were more likely to cite all four motives factors to a greater extent on average (although not meaningfully so for Image). Men were more likely to cite Prosocial reasons as barriers to green behavior. In conjunction with findings from Study 2, this suggests that this lack of concern about specific environmental issues and greater apathy toward environmental and prosocial issues is the greatest barrier for men. Given the relatively smaller number of men in the study (n = 115) and the specific population of student employees, further research should examine sex differences in motivation at work.

Environmental Sustainability Motives and Relationships with Personality and Employee Green Behavior

While personality has been examined in relation to values, concern, and employee green behavior (Dilchert & Ones, 2011; Hirsh & Dolderman, 2007; Markowitz, Milfont & Sibley, 2012; Goldberg, Ashton, & Lee, 2012), only one study has attempted to examine personality in relation to motivation by examining pro-environmental goals (Hirsh & Dolderman, 2007). Not surprisingly, personality did have meaningful

relationships with many of the motives factors, most consistently with Openness and Agreeableness, but also with Extraversion and Conscientiousness. Differences between green behavior performance and omission and ungreen behavior commission and avoidance (e.g., relationship between Conscientiousness and Prosocial and Enabling Capabilities motives for ungreen behavior avoidance) highlighted the importance of understanding how individual differences in personality relate to motives by behavioral quadrant.

Personality traits and motives were also examined in terms of their ability to predict EGB. Environmental sustainability motives appear to be good predictors of pro-environmental behavior and were able to add sizable incremental prediction above personality. Personality can help understand employee green behavior, but had greater usefulness for predicting eco-reputation. Observed zero-order correlations reflect that environmental sustainability motives for green behavior are more highly correlated with proactive than reactive behaviors, while more Prosocial barriers to *ungreen* behavior were associated with fewer green behaviors, particularly fewer reactive green behaviors. Other variations between relationships between the proactive and reactive factor and the motive factors, as well as across motive factors, were observed. Findings such as these help better understand how personality and motives affect performance of employee green behavior. Future research should include personality as well as more proximal motivational variables when examining the determinants of EGB, as research and models may benefit from including measures of employee environmental sustainability motives.

Summary of Findings across Studies

This study adopted the perspective of functional theories of motivation which suggest that individuals are motivated to engage in behavior because it serves different functions at work. By measuring motives for employee green behavior, I expected to be able to evaluate hypotheses related to how motives are correlated with green behavior, including the two main factors of proactive and reactive behavior, as well as other constructs such as sex and personality.

As expected, motives had differing relationships with personality and employee green behavior. Motives are stronger in predicting proactive compared to reactive behaviors for green behavior. Relationships with personality also varied by motive factor, as well as by personality trait and facet. Openness and Agreeableness were most highly and consistently correlated with environmental motives. Extraversion was most consistently linked to Image motives, while Conscientiousness was linked to Prosocial and Enabling Capabilities to motives for ungreen behavior avoidance.

Across Study 3 and the meta-analysis conducted in Study 2, women generally tend to report being more motivated to engage in pro-environmental behavior as well as employee green behavior. Corrected correlations were generally higher in Study 2 within workplace settings, although replication of this finding in different samples is needed. In contrast, the effect for Image was not as large as, nor generalizable, in Study 3, while the meta-analysis found the largest sex difference for social norms.

Theories of Motivation for Pro-environmental and Employee Green Behavior

Similar to job performance, performance of employee green behavior can be thought of in terms of its distal and proximal determinants (Campbell & Pritchard, 1976; Campbell et al., 1993). This study was driven by the premise that motivation plays a central role in performance of employee green behavior as a direct a determinant of employee green behavior. Evidence suggests that targeting motivational determinants may be more likely to increase EGB than interventions that target knowledge (Osbaldiston & Schott, 2012). As such, this study examined motives for EGB from this perspective.

Two theories have received significant attention in the pro-environmental domain, which include the Azjen's (1991) Theory of Planned Behavior and Value-Norms-Beliefs models (VBN; Stern et al., 1995). These theories also focus on examining determinants of pro-environmental behavior. Value-belief-norm theories seem to be successful in explaining low-cost behaviors, however do not have reduced explanatory power for more difficult bevhiors where costs are high or there are situational constraints (cf. Steg & Vlek, 2009). While the TPB is able to predict intentions well, uses perceived behavioral control, attitudes, and social norms predictive of intentions, which in turn correlate .52 with actual behavior (Bamberg & Möser, 2007). In the present study, motivation was found to correlate to a similar extent with employee green behavior with a multiple R of .48.

The Theory of Planned Behavior (TPB) is based off a rational choice model, while the approach in the present study leaves room for more subconscious means of activation,

such as habits (cf. Steg & Vlek, 2009) which were reported by participants as reasons for engaging in pro-environmental behavior. The present study also incorporates an examination of motives of why people engage in ungreen behavior and do not engage in green and ungreen behavior, which had differential relationships with constructs such as personality.

In their review of literature examining goal activation and multiple motives, Lindenberg and Steg (2007) found that these existing theories of motivation each seemed to align with different goal frames. They note that the TPB is aligned with gain goal frames which focus on effects of behavior on personal resources, VBN theories are focus on normative goal-frames with goals focused on appropriateness, or what one "ought" to do. The motivational theory in this dissertation is able to incorporate both of these frames in that the motives are more all-encompassing, and include both Image and Extrinsic facets, in addition to Prosocial and Enabling Capabilities.

Strengths and Weaknesses of Motivational Approach

There were several omissions to the present motivational approach. This study did not attempt to model all direct determinants of employee green behavior, instead focusing on motivational determinants while excluding procedural and declarative knowledge. Motivational determinants were the primary focus, given meta-analytic findings which suggest that motivational determinants of green behavior are more influenceable than knowledge (Ones & Dilchert, 2013; Osbaldiston and Schott, 2012; Semmel, Klein, Ones, Dilchert, & Wiernik, 2012). The approach was also static in nature; it did not attempt to incorporate more dynamic self-regulatory frameworks for choosing to pursue green

behavior over other competing workplace demands (Kanfer et al. 2008; Schmidt, Beck, & Gillepsie, 2012). These theories related to goal setting and striving should prove to be particularly relevant to employee green behavior given that employees are choosing to engage (or not engage) in these behaviors in the face of competing demands. However, the focus of the present study was to first examine the array of motives for employee green behavior and how it relates to other constructs before examining how motivation and goals related to sustainability interact with other goals.

While interventions can be tailored based on different motivational factors that are important to individuals, some of these motive facets, particularly the Prosocial facet, more likely reflects enduring dispositions rather than transitory states of motivation. Although there are some factors that may influence people low on the Prosocial factor (i.e., cognitive dissonance interventions; Kantola, Syme, & Campbell, 1984), influencing these motives may prove to be more difficult than other factors. In contrast, Enabling Capabilities, Extrinsic, and Image factors should be more easily influenced and can be targeted within organizations. Differential relationships between motives and proactive and reactive factors suggest that motivational interventions may be more useful for proactive behaviors, and somewhat less so for reactive behaviors.

Future Research

Future research should examine employee green behavior and motivational determinants in relation to employee job performance, organizational citizenship performance, and counterproductive workplace behavior more generally, as well as specifically within the context of performance of green behavior. While corporate social

performance and environmentally sustainable behavior has been integrated into the organizational behavior literature as the topics have increased in popularity, the domain would also benefit from continuing to be examined from an industrial/organizational psychology lens as it has much to offer in terms of theoretical and empirical work that can help understand employee green behavior. For instance, multilevel research on the intersection between individual and group behavior would be particularly beneficial in understanding EGB, and has helped in beginning to understand similar behaviors such as corporate social responsibility behaviors such as donations to charity (Leslie, L. M., Snyder, M., & Glomb; 2013). Other important and fruitful areas to examine would include how factors such as culture, climate, and other processes facilitate, support, or inhibit EGB and interact with motivation, particularly given that three of the four motive factors could be particularly influenced by organizational factors (i.e., Enabling Capabilities, Extrinsic, and Image factors). Some of the most important first next steps for EGB motivation would be to conduct similar studies with other samples to determine replicability of the factor structure of motives and the relationships with other constructs.

Conclusion

Overall these studies provide a comprehensive framework of the functions employee green behavior serves at work, as well as better understanding of the nomological network with other constructs. The framework identifies what employees try to achieve by performing green behavior at work – Prosocial motives related to helping the environment and others, Enabling Capabilities that facilitate or serve as a barrier to EGB, Extrinsic considerations related to health, safety, and finances, and an Image factor

related to striving to maintain and improve one's image or that of the organization. The Environmental Sustainability Motives Scale provides a way to comprehensively and systematically assess the four motive factors across instances of green behavior performance and omission and ungreen behavior commission and avoidance. Future investigations of employee green behavior and its determinants will benefit from inclusion of motive factors as measures of the direct determinant of motivation.

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Appendix A

Study 2: Sources Contributing to Meta-Analysis

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Appendix B

List of Variables from Each Source Contributing to Meta-Analysis for Study 2

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Arcury, Johnson, & Scollay (1986)	Knowledge		Concern (Specific)		
Arcury, Scollay, & Johnson (1987)			Concern (Specific)		
Arcury & Christianson (1990)			Concern (General)		
Arnocky, Dupuis, & Stroink (2012)			Concern (Specific) Concern (General)		
Arnocky & Stroink (2011)			Values		Behavior (General)
Arp III & Howell (1995)			Concern (Specific)		Taking initiative
Austin & Woolever (1994)			Values Concern (Specific) Concern (General)	Attitudes	
Bachtel & Molnar (1981)				Attitudes	
Barrow & Morrisey (1987)				Attitudes	
Barrow & Morrisey (1989)	Knowledge				
Blaikie (1992)			Concern (General)		
Blocker & Eckberg (1989)			Concern (Specific)	Attitudes	
Borden & Schettino (1979)			Commitment	Attitudes	

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Burrus-Bammel & Bammel (1986)	Knowledge				
Cameron, Brown, & Chapman (1998)		Self-Efficacy		Attitudes	Behavior (General) Taking initiative
Casey & Scott (2006)			Values Concern (General)		Behavior (General)
Chanda (1999)			Concern (Specific)		
Chen, Hsu, & Lin (2011)	Knowledge		Concern (General)		Behavior (General) Avoiding harm
Clark, Kotchen, & Moore (2003)					Responsible product choices
Cutter, Tiefenbacher, & Solecki (1992)			Concern (Specific)	Attitudes	
Daneshvary, Daneshvary, & Schwer (1998)				Attitudes	
Deng, Walker, & Swinnerton (2006)			Values Concern (General)		
Diamantopoulos, Schlegelmilch, Sinkovics, & Bohlen (2003)	Knowledge		Concern (General)		Behavior (General) Conserving Taking initiative Responsible product choices
Digby (2010)	Knowledge			Attitudes	Behavior (General)

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Eisler, Eisler, & Yoshida (2003)	Knowledge		Values	Attitudes	Behavior (General)
Faver & Muñoz (2013)	Knowledge Awareness		Concern (General)		
Freudenburg (1993)			Concern (Specific)		
Fritsche, Jones, Niesta Kayser , & Koranyi (2010)			Intentions		
Furman (1998)			Concern (General)		
Gotschi, Vogel, Lindenthal, & Larcher (2010)				Attitudes	Responsible product choices
Guagnano & Markee (1995)		Lack of knowledge		Attitudes	
Heath & Gifford (2006)	Knowledge	Self-efficacy	Values Intentions Concern (General) Concern (Specific)		
Herrera (1992)			Concern (General)		
Hummel, Levitt, & Loomis (1978)			Commitment	Attitudes	
Kalinowski, Lynne, & Johnson (2006)		Social Responsibility			

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Lai, Brennan, Chan & Tao (2003)			Concern (Specific)		
Larson, Whiting, & Green (2011)					Conserving Influencing Self/Others Taking initiative
Leibniz Institute for the Social Sciences (2010). *International Social Survey Programme 2010: Environment*	Awareness		Concern (General) Concern (Specific)	Attitudes	Avoiding Harm Conserving Influencing Others Responsible Product Choices Taking Initiative
Leppänen, Haahla, Lensu, & Kuitunen (2012)				Attitudes	
Leung & Rice (2002)			Concern (General)		Behavior (General)
Li (2003)					Conserving
Lindsay & Strathman (1997)	Knowledge	Expectancy Self-Efficacy Social Responsibility Norms	Concern (Specific)		Conserving
Lopez, Torres, Boyd, Silvy, & Lopez (2007)			Concern (General)		

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Mainieri, Barnett, Valdero, Unipan, & Oskamp (1997)			Concern (General)		Behavior (General) Responsible product choices Conserving
Manzo & Weinstein (1987)					Taking initiative
Matthies, Kuhn, & Klockner (2002)		Norms	Commitment Intentions	Attitudes	Responsible product choices
Mayer & McPherson Frantz (2004)			Values Concern (General)		
Mayer, McPherson Frantz, Bruehlman-Seneca, & Dolliver (2009)			Concern (General)		
McCaul & Kopp (1982)					Conserving
McDermott (2007)			Concern (General)		Behavior (General)
McStay & Dunlap (1983)			Concern (Specific) Commitment	Attitudes	Behavior (General) Taking initiative
Meinhold & Malkus (2005)			Concern (General)		Behavior (General)
Meneses & Palacio (2005)					Behavior (General) Taking initiative Influencing self/others Conserving
Michalo, Creech, McDonald, &				Attitudes	

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Kahlke (2011)					
Milfont, Harré, Sibley, & Duckitt (2012)				Attitudes	
Mobley, Vagias, & DeWard (2010)			Concern (General) Concern (Specific)		
Mohai (1992)			Concern (Specific)	Attitudes	
Murch (1974)			Commitment	Attitudes	
Nelkins (1981)			Values		
Oates & McDonald (2006)					Behavior (General) Taking Initiative Conserving
O'Connor, Bord, & Fisher (1999)	Knowledge Awareness		Concern (Specific) Concern (General)		
Organization for Economic Co-Operation and Development (2006). *Programme for International Student Assessment (PISA) 2006*	Awareness	Apathy Cost Lack of Knowledge Norms Personal Preference Self-Efficacy	Commitment	Attitudes	Avoiding Harm Conserving Responsible Product Choices Taking Initiative
Owens, Dickerson, & Macintosh (2000)					Conserving

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Ozanne, Humphrey, & Smith(1999)			Concern (General) Commitment	Attitudes	Behavior (General) Responsible product choices Taking initiative Conserving Influencing others
Pilisuk & Acredolo(1988)					
Lawrence Hamilton, Rauwald, & Moore (2002)			Values Concern (General)	Attitudes	
Roberts (1993)					Responsible product choices
Roberts (1996)		Expectancy	Concern (General)		
Rosenthal (2010)	Knowledge				
Roth & Perez (1989)	Knowledge			Attitudes	
Sarigöllü (2009)				Attitudes	
Schahn & Holzer (1990)	Knowledge		Concern (Specific)		
Schmidt & Gifford (1989)		Expectancy	Concern (Specific)		
Schultz & Stone (1994)			Concern (General)		
Siegel Levine & Strube (2012)	Knowledge		Intentions		Behavior (General)

Source	Informational Variables	Environmental Motives	Motivationally-relevant Variables	Environmental Attitudes	Pro-Environmental Behaviors
Steger & Witt (1989)	Knowledge		Values Concern (Specific) Concern (General)	Attitudes	Taking initiative
Stout-Wiegand & Trent (1983)			Concern (Specific)	Attitudes	
Sundblad, Biel, & Gärling (2007)	Knowledge Awareness				
Tindall, Davies, & Mauboule (2003)					Behavior (General) Responsible product choices Avoiding harm Influencing Self/Others Taking initiative Conserving
Vikan, Camino, Biaggio, & Nordvik (2007)			Concern (General)		
Wang (1999)			Concern (General)		
Wolkomir, Futreal, Woodrum, & Hoban (1997)			Concern (General)		Behavior (General)
World Values Survey Association (2009) *World Values Survey 1981-2008*			Values Commitment		Conserving Responsible Product Choices Taking Initiative
Zelezny, Chua, & Aldrich (2000)			Values Concern (General)		Behavior (General)

Appendix C1

Study 3: Descriptive Statistics for all Environmental Sustainability Motives Items Administered

Green Behavior Performance

[LF] = Item included on ESMS-LF; [SF] = Item included on ESMS-SF

Item #	Motive Question	Motive Items	*N*	*M*	*SD*	Median	Mode
1	Why did you monitor how your behavior impacted the environment?	for environmental benefits	187	5.39	1.41	6	6
2[LF]	Why did you monitor how your behavior impacted the environment?	for financial considerations	187	3.25	1.73	3	1
3 [LF]	Why did you monitor how your behavior impacted the environment?	opportunity was available or convenient	187	4.73	1.50	5	5
4	Why did you monitor how your behavior impacted the environment?	was required	187	2.86	1.74	2	1
5	Why did you monitor how your behavior impacted the environment?	out of habit or personal preference	187	4.95	1.48	5	5
6	Why did you monitor how your behavior impacted the environment?	didn't mind the extra effort	187	5.07	1.33	5	5
7	Why did you monitor how your behavior impacted the environment?	for health reasons	187	3.64	1.79	4	3
8 [SF]	Why did you monitor how your behavior impacted the environment?	for safety reasons	187	3.63	1.73	4	5
9 [LF]	Why did you monitor how your behavior impacted the environment?	desired to help others	187	4.65	1.61	5	4
10	Why did you monitor how your behavior impacted the environment?	to contribute to or maintain my organization's eco-friendly image	187	3.43	1.71	3	4
11[SF]	Why did you monitor how your behavior impacted the environment?	to contribute to or maintain my own eco-friendly image	187	4.03	1.66	4	4

12	Why did you monitor how your behavior impacted the environment?	to fulfill my responsibility to future generations	187	4.56	1.69	5	5
13 [LF]	Why did you monitor how your behavior impacted the environment?	because I knew how to	187	4.96	1.37	5	5
14	Why did you monitor how your behavior impacted the environment?	was valued in my department/unit or culture	187	3.58	1.74	4	4
15	Why did you monitor how your behavior impacted the environment?	because I thought I was capable of doing it	187	5.12	1.27	5	5
16 [LF]	Why did you recycle or compost?	for environmental benefits	293	5.25	1.69	6	7
17 [SF]	Why did you recycle or compost?	for financial considerations	293	2.98	1.87	3	1
18 [LF, SF]	Why did you recycle or compost?	was available or convenient	293	5.35	1.60	6	6
19	Why did you recycle or compost?	was required	293	3.29	2.00	3	1
20	Why did you recycle or compost?	out of habit or personal preference	293	5.43	1.49	6	6
21 [LF]	Why did you recycle or compost?	didn't mind the extra effort	293	5.39	1.35	6	6
22	Why did you recycle or compost?	for health reasons	293	3.29	1.91	3	1
23	Why did you recycle or compost?	for safety reasons	293	3.10	1.88	3	1
24	Why did you recycle or compost?	desired to help others	293	4.28	1.85	5	5
25	Why did you recycle or compost?	to contribute to or maintain my organization's eco-friendly image	293	3.51	1.92	3	1
26	Why did you recycle or compost?	to contribute to or maintain my own eco-friendly image	293	3.58	1.83	3	3
27	Why did you recycle or compost?	to fulfill my responsibility to future generations	293	4.15	1.79	4	4
28	Why did you recycle or compost?	because I knew how to	293	5.57	1.42	6	7
29 [LF]	Why did you recycle or compost?	was valued in my department/unit or culture	293	4.00	1.88	4	5
30	Why did you recycle or compost?	because I thought I was capable of doing it	293	5.41	1.46	6	6
31	Why did you develop or implement	for environmental benefits	77	5.30	1.47	5	5

	environmental initiatives?						
32	Why did you develop or implement environmental initiatives?	for financial considerations	77	3.86	1.57	4	4
33	Why did you develop or implement environmental initiatives?	opportunity was available or convenient	77	4.81	1.41	5	6
34	Why did you develop or implement environmental initiatives?	was required	77	3.52	1.64	4	4
35	Why did you develop or implement environmental initiatives?	out of habit or personal preference	77	5.01	1.32	5	6
36	Why did you develop or implement environmental initiatives?	didn't mind the extra effort	77	4.77	1.39	5	5
37	Why did you develop or implement environmental initiatives?	for health reasons	77	4.12	1.68	4	4
38	Why did you develop or implement environmental initiatives?	for safety reasons	77	4.01	1.53	4	4
39	Why did you develop or implement environmental initiatives?	desired to help others	77	4.79	1.34	5	5
40	Why did you develop or implement environmental initiatives?	to contribute to or maintain my organization's eco-friendly image	77	4.10	1.53	4	4
41	Why did you develop or implement environmental initiatives?	to contribute to or maintain my own eco-friendly image	77	4.51	1.23	5	5
42	Why did you develop or implement environmental initiatives?	to fulfill my responsibility to future generations	77	4.60	1.45	5	5
43	Why did you develop or implement environmental initiatives?	because I knew how to	77	4.65	1.43	5	5
44	Why did you develop or implement environmental initiatives?	was valued in my department/unit or culture	77	4.17	1.50	4	5
45	Why did you develop or implement environmental initiatives?	because I thought I was capable of doing it	77	4.90	1.40	5	6
46	Why did you use resources frugally?	for environmental benefits	242	4.48	1.86	5	5

47	Why did you use resources frugally?	for financial considerations	242	4.50	1.87	5	6
48	Why did you use resources frugally?	was convenient	242	4.29	1.55	4	5
49	Why did you use resources frugally?	was required	242	3.24	1.91	3	1
50	Why did you use resources frugally?	out of habit or personal preference	242	4.94	1.54	5	6
51	Why did you use resources frugally?	didn't mind the extra effort	242	4.78	1.49	5	5
52 LF	Why did you use resources frugally?	for health reasons	242	2.95	1.78	3	1
53 LF	Why did you use resources frugally?	for safety reasons	242	2.91	1.86	3	1
54	Why did you use resources frugally?	desired to help others	242	3.85	1.80	4	4
55	Why did you use resources frugally?	to contribute to or maintain my organization's eco-friendly image	242	3.11	1.74	3	1
56 LF	Why did you use resources frugally?	to contribute to or maintain my own eco-friendly image	242	3.33	1.68	3	4
57 LF	Why did you use resources frugally?	to fulfill my responsibility to future generations	242	3.60	1.80	4	4
58	Why did you use resources frugally?	because I knew how to	242	4.93	1.44	5	5
59	Why did you use resources frugally?	was valued in my department/unit or culture	242	3.70	1.80	4	5
60 SF	Why did you use resources frugally?	because I thought I was capable of doing it	242	4.74	1.62	5	5
61	Why did you change your work habits to be more environmentally sustainable?	for environmental benefits	158	5.26	1.38	5	5
62 LF	Why did you change your work habits to be more environmentally sustainable?	for financial considerations	158	3.56	1.74	4	3
63	Why did you change your work habits to be more environmentally sustainable?	was convenient	158	4.44	1.60	5	5
64 LF	Why did you change your work habits to be more environmentally sustainable?	was required	158	3.30	1.86	3	1
65	Why did you change your work habits to be more environmentally sustainable?	out of habit or personal preference	158	4.90	1.47	5	5

66 [LF, SF]	Why did you change your work habits to be more environmentally sustainable?	didn't mind the extra effort	158	5.04	1.38	5	5
67	Why did you change your work habits to be more environmentally sustainable?	for health reasons	158	3.72	1.82	4	5
68	Why did you change your work habits to be more environmentally sustainable?	for safety reasons	158	3.46	1.78	4	5
69	Why did you change your work habits to be more environmentally sustainable?	desired to help others	158	4.53	1.66	5	5
70	Why did you change your work habits to be more environmentally sustainable?	to contribute to or maintain my organization's eco-friendly image	158	3.58	1.87	4	1
71 [LF]	Why did you change your work habits to be more environmentally sustainable?	to contribute to or maintain my own eco-friendly image	158	3.78	1.62	4	5
72 [LF]	Why did you change your work habits to be more environmentally sustainable?	to fulfill my responsibility to future generations	158	4.31	1.67	5	5
73 [LF]	Why did you change your work habits to be more environmentally sustainable?	because I knew how to	158	5.04	1.34	5	5
74 [LF]	Why did you change your work habits to be more environmentally sustainable?	was valued in my department/unit or culture	158	3.80	1.81	4	5
75 [LF]	Why did you change your work habits to be more environmentally sustainable?	because I thought I was capable of doing it	158	5.14	1.35	5	5
76	Why did you find new uses for discarded or surplus items?	for environmental benefits	181	4.65	1.76	5	5
77	Why did you find new uses for discarded or surplus items?	for financial considerations	181	4.14	1.76	4	5
78	Why did you find new uses for discarded or surplus items?	was convenient	181	4.62	1.51	5	5
79	Why did you find new uses for discarded or surplus items?	was required	181	3.12	1.70	3	4
80	Why did you find new uses for discarded or surplus items?	out of habit or personal preference	181	4.94	1.44	5	5
81 [LF]	Why did you find new uses for discarded or	didn't mind the extra effort	181	5.09	1.38	5	6

	surplus items?						
82	Why did you find new uses for discarded or surplus items?	for health reasons	181	2.96	1.83	3	1
83	Why did you find new uses for discarded or surplus items?	for safety reasons	181	3.06	1.74	3	1
84	Why did you find new uses for discarded or surplus items?	desired to help others	181	4.17	1.69	4	5
85 [LF, SF]	Why did you find new uses for discarded or surplus items?	to contribute to or maintain my organization's eco-friendly image	181	3.35	1.74	3	4
86	Why did you find new uses for discarded or surplus items?	to contribute to or maintain my own eco-friendly image	181	3.55	1.73	4	4
87	Why did you find new uses for discarded or surplus items?	to fulfill my responsibility to future generations	181	3.95	1.75	4	4
88 [LF]	Why did you find new uses for discarded or surplus items?	because I knew how to	181	5.09	1.43	5	6
89	Why did you find new uses for discarded or surplus items?	was valued in my department/unit or culture	181	3.55	1.84	4	4
90 [LF]	Why did you find new uses for discarded or surplus items?	because I thought I was capable of doing it	181	5.03	1.37	5	5
91	Why did you dispose of waste properly?	for environmental benefits	317	5.09	1.75	5	7
92	Why did you dispose of waste properly?	for financial considerations	317	3.00	1.81	3	1
93	Why did you dispose of waste properly?	opportunity was available and convenient	317	5.30	1.45	5	6
94	Why did you dispose of waste properly?	was required	317	4.28	2.09	4	7
95 [SF]	Why did you dispose of waste properly?	out of habit or personal preference	317	5.30	1.47	5	5
96	Why did you dispose of waste properly?	didn't mind the extra effort	317	5.13	1.52	5	5
97	Why did you dispose of waste properly?	for health reasons	317	4.07	2.06	4	1
98	Why did you dispose of waste properly?	for safety reasons	317	4.29	2.05	5	5
99	Why did you dispose of waste properly?	desired to help others	317	4.16	1.80	4	5

100	Why did you dispose of waste properly?	to contribute to or maintain my organization's eco-friendly image	317	3.47	1.87	4	2
101	Why did you dispose of waste properly?	to contribute to or maintain my own eco-friendly image	317	3.58	1.81	4	5
102	Why did you dispose of waste properly?	to fulfill my responsibility to future generations	317	4.03	1.85	4	4
103	Why did you dispose of waste properly?	because I knew how to	317	5.53	1.34	6	6
104	Why did you dispose of waste properly?	was valued in my department/unit or culture	317	4.15	1.92	4	4
105	Why did you dispose of waste properly?	because I thought I was capable of doing it	317	5.25	1.49	5	5
106 [SF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	for environmental benefits	236	5.07	1.56	5	5
107 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	for financial considerations	236	3.20	1.71	3	1
108	Why did you behave in an environmentally responsible way even when it was inconvenient?	opportunity was available	236	5.03	1.45	5	5
109 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	was required	236	3.09	1.85	3	1
110 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	out of habit or personal preference	236	4.97	1.58	5	6
111	Why did you behave in an environmentally responsible way even when it was inconvenient?	didn't mind the extra effort	236	5.00	1.41	5	5
112 [LF, SF]	Why did you behave in an environmentally responsible way even when it was	for health reasons	236	3.42	1.91	3	1

	inconvenient?						
113 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	for safety reasons	236	3.31	1.84	3	1
114 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	desired to help others	236	4.40	1.71	5	5
115 [LF]	Why did you behave in an environmentally responsible way even when it was inconvenient?	to contribute to or maintain my organization's eco-friendly image	236	3.50	1.88	4	1
116	Why did you behave in an environmentally responsible way even when it was inconvenient?	to contribute to or maintain my own eco-friendly image	236	3.70	1.75	4	5
117	Why did you behave in an environmentally responsible way even when it was inconvenient?	to fulfill my responsibility to future generations	236	4.07	1.76	4	5
118	Why did you behave in an environmentally responsible way even when it was inconvenient?	because I knew how to	236	5.15	1.34	5	5
119	Why did you behave in an environmentally responsible way even when it was inconvenient?	was valued in my department/unit or culture	236	3.75	1.86	4	5
120	Why did you behave in an environmentally responsible way even when it was inconvenient?	because I thought I was capable of doing it	236	4.97	1.42	5	5
121 [LF]	Why did you make environmentally responsible product choices?	for environmental benefits	235	5.17	1.48	5	5
122	Why did you make environmentally responsible product choices?	for financial considerations	235	3.20	1.62	3	4
123 [LF]	Why did you make environmentally responsible product choices?	available or convenient	235	4.71	1.39	5	5

124 [SF]	Why did you make environmentally responsible product choices?	was required	235	3.11	1.75	3	1
125 [LF]	Why did you make environmentally responsible product choices?	out of habit or personal preference	235	4.77	1.53	5	5
126	Why did you make environmentally responsible product choices?	didn't mind the extra effort	235	4.79	1.44	5	5
127	Why did you make environmentally responsible product choices?	for health reasons	235	3.64	1.81	4	5
128 [LF]	Why did you make environmentally responsible product choices?	for safety reasons	235	3.32	1.81	3	1
129 [LF]	Why did you make environmentally responsible product choices?	desired to help others	235	4.26	1.72	4	5
130	Why did you make environmentally responsible product choices?	to contribute to or maintain my organization's eco-friendly image	235	3.43	1.82	4	4
131	Why did you make environmentally responsible product choices?	to contribute to or maintain my own eco-friendly image	235	3.68	1.73	4	4
132 [LF, SF]	Why did you make environmentally responsible product choices?	to fulfill my responsibility to future generations	235	4.08	1.74	4	5
133	Why did you make environmentally responsible product choices?	because I knew how to	235	4.83	1.45	5	5
134 [LF]	Why did you make environmentally responsible product choices?	was valued in my department/unit or culture	235	3.66	1.77	4	4
135 [LF]	Why did you make environmentally responsible product choices?	because I thought I was capable of doing it	235	4.81	1.50	5	5
136	Why did you encourage and support others to be environmentally responsible?	for environmental benefits	176	5.26	1.44	5	5
137	Why did you encourage and support others to be environmentally responsible?	for financial considerations	176	3.11	1.67	3	1
138	Why did you encourage and support others to be environmentally responsible?	was convenient	176	4.18	1.44	4	4
139	Why did you encourage and support others to	was required	176	2.63	1.70	2	1

	be environmentally responsible?						
140 [LF]	Why did you encourage and support others to be environmentally responsible?	out of habit or personal preference	176	4.89	1.51	5	5
141	Why did you encourage and support others to be environmentally responsible?	didn't mind the extra effort	176	4.92	1.37	5	5
142	Why did you encourage and support others to be environmentally responsible?	for health reasons	176	3.49	1.85	4	1
143	Why did you encourage and support others to be environmentally responsible?	for safety reasons	176	3.32	1.77	3	1
144 [SF]	Why did you encourage and support others to be environmentally responsible?	desired to help others	176	4.89	1.41	5	5
145	Why did you encourage and support others to be environmentally responsible?	to contribute to or maintain my organization's eco-friendly image	176	3.70	1.81	4	5
146	Why did you encourage and support others to be environmentally responsible?	to contribute to or maintain my own eco-friendly image	176	3.85	1.68	4	5
147	Why did you encourage and support others to be environmentally responsible?	to fulfill my responsibility to future generations	176	4.32	1.70	5	5
148 [SF]	Why did you encourage and support others to be environmentally responsible?	because I knew how to	176	4.95	1.42	5	5
149	Why did you encourage and support others to be environmentally responsible?	was valued in my department/unit or culture	176	3.84	1.80	4	5
150	Why did you encourage and support others to be environmentally responsible?	because I thought I was capable of doing it	176	4.95	1.38	5	5
151	Why did you generate creative ideas relating to environmental sustainability?	for environmental benefits	83	4.99	1.32	5	5
152	Why did you generate creative ideas relating to environmental sustainability?	for financial considerations	83	3.92	1.65	4	4
153	Why did you generate creative ideas relating to environmental sustainability?	was convenient	83	4.13	1.41	4	4
154	Why did you generate creative ideas relating	was required	83	3.57	1.64	4	4

	to environmental sustainability?						
155	Why did you generate creative ideas relating to environmental sustainability?	out of habit or personal preference	83	4.80	1.25	5	5
156	Why did you generate creative ideas relating to environmental sustainability?	didn't mind the extra effort	83	4.71	1.52	5	6
157	Why did you generate creative ideas relating to environmental sustainability?	for health reasons	83	3.84	1.63	4	4
158	Why did you generate creative ideas relating to environmental sustainability?	for safety reasons	83	3.83	1.67	4	5
159	Why did you generate creative ideas relating to environmental sustainability?	desired to help others	83	4.64	1.44	5	5
160	Why did you generate creative ideas relating to environmental sustainability?	to contribute to or maintain my organization's eco-friendly image	83	3.87	1.67	4	4
161	Why did you generate creative ideas relating to environmental sustainability?	to contribute to or maintain my own eco-friendly image	83	3.95	1.50	4	4
162	Why did you generate creative ideas relating to environmental sustainability?	to fulfill my responsibility to future generations	83	4.19	1.59	4	4
163	Why did you generate creative ideas relating to environmental sustainability?	because I knew how to	83	4.77	1.32	5	6
164	Why did you generate creative ideas relating to environmental sustainability?	was valued in my department/unit or culture	83	3.90	1.52	4	5
165	Why did you generate creative ideas relating to environmental sustainability?	because I thought I was capable of doing it	83	4.73	1.40	5	5
166	Why were you involved in projects that tried to repair damage to the environment?	for environmental benefits	66	5.00	1.35	5	5
167	Why were you involved in projects that tried to repair damage to the environment?	for financial considerations	66	3.35	1.73	3	1
168	Why were you involved in projects that tried to repair damage to the environment?	projects were available or convenient	66	4.27	1.60	5	5
169	Why were you involved in projects that tried to repair damage to the environment?	was required	66	3.73	1.80	4	4

170	Why were you involved in projects that tried to repair damage to the environment?	out of habit or personal preference	66	4.59	1.46	5	5
171	Why were you involved in projects that tried to repair damage to the environment?	didn't mind the extra effort	66	4.68	1.43	5	4
172	Why were you involved in projects that tried to repair damage to the environment?	for health reasons	66	3.79	1.69	4	4
173	Why were you involved in projects that tried to repair damage to the environment?	for safety reasons	66	3.62	1.66	4	5
174	Why were you involved in projects that tried to repair damage to the environment?	desired to help others	66	4.58	1.58	5	5
175	Why were you involved in projects that tried to repair damage to the environment?	to contribute to or maintain my organization's eco-friendly image	66	3.89	1.67	4	5
176	Why were you involved in projects that tried to repair damage to the environment?	to contribute to or maintain my own eco-friendly image	66	4.27	1.54	5	5
177	Why were you involved in projects that tried to repair damage to the environment?	to fulfill my responsibility to future generations	66	4.41	1.54	4	4
178	Why were you involved in projects that tried to repair damage to the environment?	because I knew how to get involved	66	4.56	1.60	5	5
179	Why were you involved in projects that tried to repair damage to the environment?	was valued in my department/unit or culture	66	4.33	1.62	5	5
180	Why were you involved in projects that tried to repair damage to the environment?	because I thought I was capable of doing it	66	4.74	1.55	5	5
181 [LF]	Why did you embrace innovations for environmental sustainability?	for environmental benefits	227	4.97	1.54	5	5
182	Why did you embrace innovations for environmental sustainability?	for financial considerations	227	3.42	1.72	3	3
183	Why did you embrace innovations for environmental sustainability?	were available or convenient	227	4.81	1.35	5	5
184 [LF]	Why did you embrace innovations for environmental sustainability?	was required	227	3.60	1.79	4	5
185 [LF]	Why did you embrace innovations for	out of habit or personal preference	227	4.62	1.55	5	5

	environmental sustainability?						
186	Why did you embrace innovations for environmental sustainability?	didn't mind the extra effort	227	4.80	1.36	5	5
187 [LF]	Why did you embrace innovations for environmental sustainability?	for health reasons	227	3.56	1.72	4	4
188	Why did you embrace innovations for environmental sustainability?	for safety reasons	227	3.32	1.78	3	1
189	Why did you embrace innovations for environmental sustainability?	desired to help others	227	4.37	1.58	5	5
190 [LF]	Why did you embrace innovations for environmental sustainability?	to contribute to or maintain my organization's eco-friendly image	227	3.64	1.75	4	5
191 [LF]	Why did you embrace innovations for environmental sustainability?	to contribute to or maintain my own eco-friendly image	227	3.62	1.63	4	4
192	Why did you embrace innovations for environmental sustainability?	to fulfill my responsibility to future generations	227	4.17	1.64	4	4
193	Why did you embrace innovations for environmental sustainability?	because I knew how to	227	4.84	1.29	5	5
194 [SF]	Why did you embrace innovations for environmental sustainability?	was valued in my department/unit or culture	227	3.86	1.64	4	5
195	Why did you embrace innovations for environmental sustainability?	because I thought I was capable of doing it	227	4.96	1.43	5	5

Appendix C2

Study 3: Descriptive Statistics for all Environmental Sustainability Motives Items Administered

Green Behavior Omission

[LF] = Item included on ESMS-LF; [SF] = Item included on ESMS-SF

Item #	Motive Question	Motive Items	*N*	*M*	*SD*	Median	Mode
1	Why didn't you monitor how your behavior impacted the environment?	environment was not important to me	158	2.44	1.57	2	1
2 [LF]	Why didn't you monitor how your behavior impacted the environment?	for financial considerations	158	2.36	1.64	2	1
3 [LF]	Why didn't you monitor how your behavior impacted the environment?	opportunity was not available or convenient	158	4.47	1.81	5	5
4	Why didn't you monitor how your behavior impacted the environment?	I was required not to	158	2.85	2.03	2	1
5	Why didn't you monitor how your behavior impacted the environment?	out of habit or personal preference	158	4.02	1.67	4	5
6 [LF, SF]	Why didn't you monitor how your behavior impacted the environment?	would have been a hassle	158	4.11	1.85	4	4
7	Why didn't you monitor how your behavior impacted the environment?	for health reasons	158	1.98	1.36	2	1
8 [LF]	Why didn't you monitor how your behavior impacted the environment?	for safety reasons	158	2.06	1.45	1	1
9	Why didn't you monitor how your behavior impacted the environment?	didn't need or want to help others	158	2.16	1.36	2	1
10	Why didn't you monitor how your behavior impacted the environment?	projecting an eco-friendly image is not important for my organization	158	3.26	1.81	3	1

11 [LF]	Why didn't you monitor how your behavior impacted the environment?	projecting an eco-friendly image of myself is not important	158	2.96	1.69	3	2
12	Why didn't you monitor how your behavior impacted the environment?	do not feel responsible to future generations	158	2.42	1.52	2	1
13 [LF]	Why didn't you monitor how your behavior impacted the environment?	didn't know how to	158	3.60	1.85	4	4
14	Why didn't you monitor how your behavior impacted the environment?	was not valued in my department/unit or culture	158	3.33	1.91	3	1
15 [LF]	Why didn't you monitor how your behavior impacted the environment?	because I thought I wouldn't be capable of doing it	158	2.97	1.71	3	1
16 [LF, SF]	Why didn't you monitor how your behavior impacted the environment?	was careless	158	3.62	1.79	4	5
17 [LF]	Why didn't you monitor how your behavior impacted the environment?	did not care	158	3.13	1.75	3	1
18	Why didn't you recycle or compost?	environment was not important to me	52	2.29	1.64	2	1
19	Why didn't you recycle or compost?	for financial considerations	52	2.67	2.02	2	1
20	Why didn't you recycle or compost?	was not available or convenient	52	4.90	2.30	6	7
21	Why didn't you recycle or compost?	I was required not to	52	2.94	2.08	3	1
22	Why didn't you recycle or compost?	out of habit or personal preference	52	2.90	1.88	3	1
23	Why didn't you recycle or compost?	would have been a hassle	52	3.62	2.17	3	1
24	Why didn't you recycle or compost?	for health reasons	52	2.02	1.41	1	1
25	Why didn't you recycle or compost?	for safety reasons	52	2.37	1.75	2	1
26	Why didn't you recycle or compost?	didn't need or want to help others	52	2.23	1.69	1	1
27	Why didn't you recycle or compost?	projecting an eco-friendly image is not important for my	52	3.60	2.10	4	1

		organization					
28	Why didn't you recycle or compost?	projecting an eco-friendly image of myself is not important	52	2.75	1.87	2	1
29	Why didn't you recycle or compost?	do not feel responsible to future generations	52	1.94	1.41	1	1
30	Why didn't you recycle or compost?	didn't know how to	52	3.21	1.92	3	1
31	Why didn't you recycle or compost?	was not valued in my department/unit or culture	52	3.81	2.28	4	1
32	Why didn't you recycle or compost?	because I thought I wouldn't be capable of doing it	52	3.08	1.96	3	1
33	Why didn't you recycle or compost?	was careless	52	2.71	1.97	2	1
34	Why didn't you recycle or compost?	did not care	52	2.62	1.92	2	1
35	Why didn't you develop or implement environmental initiatives?	environment was not important to me	268	2.14	1.44	2	1
36 [LF]	Why didn't you develop or implement environmental initiatives?	for financial considerations	268	2.46	1.66	2	1
37 [LF]	Why didn't you develop or implement environmental initiatives?	opportunity was not available or convenient	268	4.94	1.82	5	7
38 [LF]	Why didn't you develop or implement environmental initiatives?	I was required not to	268	2.97	2.05	2	1
39	Why didn't you develop or implement environmental initiatives?	out of habit or personal preference	268	3.35	1.83	4	1
40 [LF]	Why didn't you develop or implement environmental initiatives?	would have been a hassle	268	3.94	1.87	4	5
41 [LF]	Why didn't you develop or implement environmental initiatives?	for health reasons	268	1.89	1.34	1	1
42 [LF]	Why didn't you develop or implement environmental initiatives?	for safety reasons	268	2.00	1.44	1	1
43	Why didn't you develop or implement	didn't need or want to help	268	1.94	1.27	1	1

	environmental initiatives?	others					
44 [LF]	Why didn't you develop or implement environmental initiatives?	projecting an eco-friendly image is not important for my organization	268	2.99	1.82	3	1
45 [LF]	Why didn't you develop or implement environmental initiatives?	projecting an eco-friendly image of myself is not important	268	2.53	1.66	2	1
46 [LF, SF]	Why didn't you develop or implement environmental initiatives?	do not feel responsible to future generations	268	2.26	1.48	2	1
47	Why didn't you develop or implement environmental initiatives?	didn't know how to	268	4.16	1.95	5	5
48 [SF]	Why didn't you develop or implement environmental initiatives?	was not valued in my department/unit or culture	268	3.25	1.93	3	1
49	Why didn't you develop or implement environmental initiatives?	because I thought I wouldn't be capable of doing it	268	3.53	1.90	4	1
50 [LF]	Why didn't you develop or implement environmental initiatives?	was thoughtless	268	3.06	1.82	3	1
51 [LF]	Why didn't you develop or implement environmental initiatives?	did not care	268	2.81	1.79	3	1
52	Why didn't you use resources frugally?	environment was not important to me	103	2.42	1.47	2	1
53	Why didn't you use resources frugally?	for financial considerations	103	2.54	1.53	2	1
54	Why didn't you use resources frugally?	was not convenient	103	4.16	1.70	4	5
55	Why didn't you use resources frugally?	I was required not to	103	3.10	1.96	3	1
56	Why didn't you use resources frugally?	out of habit or personal preference	103	3.77	1.80	4	5
57	Why didn't you use resources frugally?	would have been a hassle	103	4.07	1.74	4	5
58	Why didn't you use resources frugally?	for health reasons	103	2.54	1.71	2	1
59	Why didn't you use resources frugally?	for safety reasons	103	2.49	1.69	2	1
60	Why didn't you use resources frugally?	didn't need or want to help	103	2.43	1.51	2	1

		others					
61	Why didn't you use resources frugally?	projecting an eco-friendly image is not important for my organization	103	3.01	1.82	3	1
62	Why didn't you use resources frugally?	projecting an eco-friendly image of myself is not important	103	2.80	1.66	2	1
63	Why didn't you use resources frugally?	do not feel responsible to future generations	103	2.56	1.56	2	1
64	Why didn't you use resources frugally?	didn't know how to	103	3.57	1.74	4	4
65	Why didn't you use resources frugally?	was not valued in my department/unit or culture	103	3.25	1.93	3	1
66	Why didn't you use resources frugally?	because I thought I wouldn't be capable of doing it	103	2.80	1.68	3	1
67	Why didn't you use resources frugally?	was careless	103	3.56	1.78	4	4
68	Why didn't you use resources frugally?	did not care	103	3.44	1.93	3	1
69	Why didn't you change your work habits to be more environmentally sustainable?	environment was not important to me	187	2.29	1.44	2	1
70 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	for financial considerations	187	2.71	1.73	2	1
71	Why didn't you change your work habits to be more environmentally sustainable?	was not convenient	187	3.99	1.93	4	5
72	Why didn't you change your work habits to be more environmentally sustainable?	I was required not to change them	187	3.45	2.06	3	1
73	Why didn't you change your work habits to be more environmentally sustainable?	out of habit or personal preference	187	3.70	1.88	4	5
74	Why didn't you change your work habits to be more environmentally sustainable?	would have been a hassle	187	4.02	1.85	4	5
75 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	for health reasons	187	2.20	1.55	2	1

76 [LF, SF]	Why didn't you change your work habits to be more environmentally sustainable?	for safety reasons	187	2.39	1.72	2	1
77	Why didn't you change your work habits to be more environmentally sustainable?	didn't need or want to help others	187	2.04	1.23	2	1
78 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	projecting an eco-friendly image is not important for my organization	187	3.16	1.88	3	1
79 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	projecting an eco-friendly image of myself is not important	187	2.72	1.61	2	1
80	Why didn't you change your work habits to be more environmentally sustainable?	do not feel responsible to future generations	187	2.30	1.47	2	1
81 [LF, SF]	Why didn't you change your work habits to be more environmentally sustainable?	didn't know how to	187	4.16	1.92	5	5
82	Why didn't you change your work habits to be more environmentally sustainable?	was not valued in my department/unit or culture	187	3.45	1.90	3	1
83 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	because I thought I wouldn't be capable of doing it	187	3.09	1.81	3	1
84 [LF]	Why didn't you change your work habits to be more environmentally sustainable?	was thoughtless	187	3.11	1.74	3	1
85	Why didn't you change your work habits to be more environmentally sustainable?	did not care	187	2.90	1.84	2	1
86 [LF]	Why didn't you find new uses for discarded or surplus items?	environment was not important to me	164	2.21	1.46	2	1
87	Why didn't you find new uses for discarded or surplus items?	for financial considerations	164	2.30	1.57	2	1
88 [LF]	Why didn't you find new uses for discarded or surplus items?	was not convenient	164	4.22	1.87	5	5
89 [LF]	Why didn't you find new uses for discarded or surplus items?	I was required not to	164	3.05	2.02	2	1
90 [LF]	Why didn't you find new uses for discarded	out of habit or personal	164	3.45	1.81	3	1

	or surplus items?	preference					
91	Why didn't you find new uses for discarded or surplus items?	would have been a hassle	164	4.17	1.89	5	5
92 [LF, SF]	Why didn't you find new uses for discarded or surplus items?	for health reasons	164	2.44	1.70	2	1
93	Why didn't you find new uses for discarded or surplus items?	for safety reasons	164	2.49	1.72	2	1
94 [SF]	Why didn't you find new uses for discarded or surplus items?	didn't need or want to help others	164	2.05	1.26	2	1
95 [SF]	Why didn't you find new uses for discarded or surplus items?	projecting an eco-friendly image is not important for my organization	164	2.84	1.68	3	1
96	Why didn't you find new uses for discarded or surplus items?	projecting an eco-friendly image of myself is not important	164	2.60	1.55	2	1
97	Why didn't you find new uses for discarded or surplus items?	do not feel responsible to future generations	164	2.27	1.38	2	1
98	Why didn't you find new uses for discarded or surplus items?	didn't know how to	164	4.45	1.85	5	5
99	Why didn't you find new uses for discarded or surplus items?	was not valued in my department/unit or culture	164	3.30	1.94	3	1
100	Why didn't you find new uses for discarded or surplus items?	because I thought I wouldn't be capable of doing it	164	3.35	1.85	4	1
101	Why didn't you find new uses for discarded or surplus items?	was thoughtless	164	3.37	1.88	3	1
102	Why didn't you find new uses for discarded or surplus items?	did not care	164	2.98	1.80	3	1
103	Why didn't you dispose of waste properly?	environment was not important to me	28	2.82	1.93	2	1
104	Why didn't you dispose of waste properly?	for financial considerations	28	1.86	1.11	2	1
105	Why didn't you dispose of waste properly?	opportunity was not available	28	4.11	2.01	4	5

		or convenient					
106	Why didn't you dispose of waste properly?	I was required not to	28	2.79	1.81	2	1
107	Why didn't you dispose of waste properly?	out of habit or personal preference	28	3.54	1.99	4	1
108	Why didn't you dispose of waste properly?	would have been a hassle	28	3.96	1.91	4	4
109	Why didn't you dispose of waste properly?	for health reasons	28	2.29	1.30	2	1
110	Why didn't you dispose of waste properly?	for safety reasons	28	2.21	1.26	2	1
111	Why didn't you dispose of waste properly?	didn't need or want to help others	28	2.39	1.73	2	1
112	Why didn't you dispose of waste properly?	projecting an eco-friendly image is not important for my organization	28	2.89	1.77	2	2
113	Why didn't you dispose of waste properly?	projecting an eco-friendly image of myself is not important	28	3.04	1.88	2	2
114	Why didn't you dispose of waste properly?	do not feel responsible to future generations	28	2.68	1.89	2	1
115	Why didn't you dispose of waste properly?	didn't know how to	28	3.54	2.03	3	2
116	Why didn't you dispose of waste properly?	was not valued in my department/unit or culture	28	3.64	1.93	3	3
117	Why didn't you dispose of waste properly?	because I thought I wouldn't be capable of doing it	28	3.11	2.10	3	1
118	Why didn't you dispose of waste properly?	was careless	28	3.39	2.01	3	1
119	Why didn't you dispose of waste properly?	did not care	28	3.18	2.00	3	1
120	Why didn't you behave in an environmentally responsible way when it was inconvenient?	environment was not important to me	109	2.48	1.64	2	1
121	Why didn't you behave in an environmentally responsible way when it was inconvenient?	for financial considerations	109	2.48	1.63	2	1

122	Why didn't you behave in an environmentally responsible way when it was inconvenient?	opportunity was not available	109	4.28	1.91	5	5
123	Why didn't you behave in an environmentally responsible way when it was inconvenient?	I was required not to	109	3.02	1.92	2	1
124	Why didn't you behave in an environmentally responsible way when it was inconvenient?	out of habit or personal preference	109	3.81	1.81	4	5
125	Why didn't you behave in an environmentally responsible way when it was inconvenient?	would have been a hassle	109	4.33	1.76	5	5
126	Why didn't you behave in an environmentally responsible way when it was inconvenient?	for health reasons	109	2.15	1.55	1	1
127	Why didn't you behave in an environmentally responsible way when it was inconvenient?	for safety reasons	109	2.34	1.60	2	1
128	Why didn't you behave in an environmentally responsible way when it was inconvenient?	didn't need or want to help others	109	2.17	1.32	2	1
129	Why didn't you behave in an environmentally responsible way when it was inconvenient?	projecting an eco-friendly image is not important for my organization	109	3.22	1.82	3	1
130	Why didn't you behave in an environmentally responsible way when it was inconvenient?	projecting an eco-friendly image of myself is not important	109	2.90	1.75	3	1
131	Why didn't you behave in an environmentally responsible way when it was inconvenient?	do not feel responsible to future generations	109	2.23	1.46	2	1
132	Why didn't you behave in an	didn't know how to	109	3.83	1.84	4	4

	environmentally responsible way when it was inconvenient?						
133	Why didn't you behave in an environmentally responsible way when it was inconvenient?	was not valued in my department/unit or culture	109	3.39	1.91	3	2
134	Why didn't you behave in an environmentally responsible way when it was inconvenient?	because I thought I wouldn't be capable of doing it	109	3.10	1.68	3	2
135	Why didn't you behave in an environmentally responsible way when it was inconvenient?	was thoughtless	109	3.41	1.76	4	4
136	Why didn't you behave in an environmentally responsible way when it was inconvenient?	did not care	109	3.02	1.87	3	1
137	Why didn't you make environmentally responsible product choices?	environment was not important to me	110	2.20	1.62	1	1
138	Why didn't you make environmentally responsible product choices?	for financial considerations	110	2.60	1.86	2	1
139	Why didn't you make environmentally responsible product choices?	not available or convenient	110	4.47	1.90	5	5
140	Why didn't you make environmentally responsible product choices?	I was required not to	110	3.05	2.07	2	1
141	Why didn't you make environmentally responsible product choices?	out of habit or personal preference	110	3.17	1.92	3	1
142	Why didn't you make environmentally responsible product choices?	would have been a hassle	110	3.88	1.94	4	5
143	Why didn't you make environmentally responsible product choices?	for health reasons	110	2.01	1.55	1	1
144	Why didn't you make environmentally responsible product choices?	for safety reasons	110	2.02	1.61	1	1
145	Why didn't you make environmentally	did't need or want to help	110	1.99	1.26	2	1

	responsible product choices?	others					
146	Why didn't you make environmentally responsible product choices?	projecting an eco-friendly image is not important for my organization	110	3.10	1.97	3	1
147	Why didn't you make environmentally responsible product choices?	projecting an eco-friendly image of myself is not important	110	2.56	1.80	2	1
148	Why didn't you make environmentally responsible product choices?	do not feel responsible to future generations	110	2.29	1.65	2	1
149	Why didn't you make environmentally responsible product choices?	didn't know how to	110	3.54	1.96	4	1
150	Why didn't you make environmentally responsible product choices?	was not valued in my department/unit or culture	110	3.35	1.96	3	1
151	Why didn't you make environmentally responsible product choices?	because I thought I wouldn't be capable of doing it	110	2.86	1.76	3	1
152	Why didn't you make environmentally responsible product choices?	was careless	110	2.98	1.82	3	1
153	Why didn't you make environmentally responsible product choices?	did not care	110	2.86	1.97	2	1
154 [LF]	Why didn't you encourage and support others to be environmentally responsible?	environment was not important to me	169	2.30	1.57	2	1
155 [SF]	Why didn't you encourage and support others to be environmentally responsible?	for financial considerations	169	2.22	1.63	1	1
156	Why didn't you encourage and support others to be environmentally responsible?	was not convenient	169	3.86	1.88	4	5
157 [LF]	Why didn't you encourage and support others to be environmentally responsible?	I was required not to	169	2.79	1.98	2	1
158 [LF]	Why didn't you encourage and support others to be environmentally responsible?	out of habit or personal preference	169	3.58	1.84	4	1
159 [LF]	Why didn't you encourage and support others to be environmentally responsible?	would have been a hassle	169	3.68	1.88	4	1

160	Why didn't you encourage and support others to be environmentally responsible?	for health reasons	169	1.94	1.47	1	1
161	Why didn't you encourage and support others to be environmentally responsible?	for safety reasons	169	1.93	1.35	1	1
162 [LF]	Why didn't you encourage and support others to be environmentally responsible?	didn't need or want to help others	169	2.20	1.49	2	1
163	Why didn't you encourage and support others to be environmentally responsible?	projecting an eco-friendly image is not important for my organization	169	3.17	1.85	3	1
164	Why didn't you encourage and support others to be environmentally responsible?	projecting an eco-friendly image of myself is not important	169	2.64	1.72	2	1
165 [LF]	Why didn't you encourage and support others to be environmentally responsible?	do not feel responsible to future generations	169	2.33	1.51	2	1
166 [LF]	Why didn't you encourage and support others to be environmentally responsible?	didn't know how to	169	3.64	2.01	4	1
167 [LF]	Why didn't you encourage and support others to be environmentally responsible?	was not valued in my department/unit or culture	169	3.28	1.90	3	1
168 [SF]	Why didn't you encourage and support others to be environmentally responsible?	because I thought I wouldn't be capable of doing it	169	2.96	1.84	3	1
169	Why didn't you encourage and support others to be environmentally responsible?	was thoughtless	169	3.27	1.84	3	1
170 [LF, SF]	Why didn't you encourage and support others to be environmentally responsible?	did not care	169	3.11	1.89	3	1
171 [LF, SF]	Why didn't you generate creative ideas relating to environmental sustainability?	environment was not important to me	262	2.16	1.46	2	1
172	Why didn't you generate creative ideas relating to environmental sustainability?	for financial considerations	262	2.48	1.69	2	1
173	Why didn't you generate creative ideas relating to environmental sustainability?	was not convenient	262	4.00	1.87	4	5
174	Why didn't you generate creative ideas	I was required not to	262	3.11	2.13	2	1

	relating to environmental sustainability?						
175 [LF]	Why didn't you generate creative ideas relating to environmental sustainability?	out of habit or personal preference	262	3.28	1.84	3	1
176	Why didn't you generate creative ideas relating to environmental sustainability?	would have been a hassle	262	3.90	1.82	4	5
177	Why didn't you generate creative ideas relating to environmental sustainability?	for health reasons	262	1.87	1.23	1	1
178	Why didn't you generate creative ideas relating to environmental sustainability?	for safety reasons	262	1.99	1.42	1	1
179 [LF]	Why didn't you generate creative ideas relating to environmental sustainability?	didn't need or want to help others	262	2.04	1.37	2	1
180	Why didn't you generate creative ideas relating to environmental sustainability?	projecting an eco-friendly image is not important for my organization	262	3.26	1.91	3	1
181 [SF]	Why didn't you generate creative ideas relating to environmental sustainability?	projecting an eco-friendly image of myself is not important	262	2.60	1.67	2	1
182	Why didn't you generate creative ideas relating to environmental sustainability?	do not feel responsible to future generations	262	2.26	1.43	2	1
183	Why didn't you generate creative ideas relating to environmental sustainability?	didn't know how to	262	4.47	1.91	5	5
184 [LF]	Why didn't you generate creative ideas relating to environmental sustainability?	was not valued in my department/unit or culture	262	3.26	1.92	3	1
185 [LF]	Why didn't you generate creative ideas relating to environmental sustainability?	because I thought I wouldn't be capable of doing it	262	3.44	1.89	3	1
186	Why didn't you generate creative ideas relating to environmental sustainability?	was thoughtless	262	3.18	1.86	3	1
187	Why didn't you generate creative ideas relating to environmental sustainability?	did not care	262	2.82	1.82	2	1
188	Why weren't you involved in projects that tried to repair damage to the environment?	environment was not important to me	279	2.09	1.38	2	1

189	Why weren't you involved in projects that tried to repair damage to the environment?	for financial considerations	279	2.24	1.60	2	1
190 [LF, SF]	Why weren't you involved in projects that tried to repair damage to the environment?	projects were not available or convenient	279	5.33	1.84	6	7
191 [SF]	Why weren't you involved in projects that tried to repair damage to the environment?	I was required not to be involved	279	2.58	2.02	1	1
192 [SF]	Why weren't you involved in projects that tried to repair damage to the environment?	out of habit or personal preference	279	3.18	1.90	3	1
193	Why weren't you involved in projects that tried to repair damage to the environment?	would have been a hassle	279	3.44	1.94	4	1
194	Why weren't you involved in projects that tried to repair damage to the environment?	for health reasons	279	1.81	1.30	1	1
195	Why weren't you involved in projects that tried to repair damage to the environment?	for safety reasons	279	1.87	1.34	1	1
196 [LF]	Why weren't you involved in projects that tried to repair damage to the environment?	didn't need or want to help others	279	1.87	1.16	1	1
197 [LF]	Why weren't you involved in projects that tried to repair damage to the environment?	projecting an eco-friendly image is not important for my organization	279	2.90	1.95	2	1
198	Why weren't you involved in projects that tried to repair damage to the environment?	projecting an eco-friendly image of myself is not important	279	2.36	1.56	2	1
199 [LF]	Why weren't you involved in projects that tried to repair damage to the environment?	do not feel responsible to future generations	279	2.02	1.34	1	1
200	Why weren't you involved in projects that tried to repair damage to the environment?	didn't know how to get involved	279	4.47	1.93	5	6
201 [LF]	Why weren't you involved in projects that tried to repair damage to the environment?	was not valued in my department/unit or culture	279	3.22	1.95	3	1
202	Why weren't you involved in projects that tried to repair damage to the environment?	because I thought I wouldn't be capable of doing it	279	2.79	1.76	3	1
203	Why weren't you involved in projects that	was thoughtless	279	2.76	1.77	2	1

	tried to repair damage to the environment?						
204	Why weren't you involved in projects that tried to repair damage to the environment?	did not care	279	2.60	1.82	2	1
205	Why didn't you embrace innovations for environmental sustainability?	environment was not important to me	118	2.19	1.54	2	1
206	Why didn't you embrace innovations for environmental sustainability?	for financial considerations	118	2.38	1.67	2	1
207	Why didn't you embrace innovations for environmental sustainability?	were not available or convenient	118	4.88	2.09	5	7
208	Why didn't you embrace innovations for environmental sustainability?	I was required not to	118	3.29	2.12	3	1
209	Why didn't you embrace innovations for environmental sustainability?	out of habit or personal preference	118	3.14	1.92	3	1
210	Why didn't you embrace innovations for environmental sustainability?	would have been a hassle	118	3.70	2.03	4	1
211	Why didn't you embrace innovations for environmental sustainability?	for health reasons	118	1.92	1.42	1	1
212	Why didn't you embrace innovations for environmental sustainability?	for safety reasons	118	1.99	1.44	1	1
213	Why didn't you embrace innovations for environmental sustainability?	didn't need or want to help others	118	2.10	1.45	2	1
214	Why didn't you embrace innovations for environmental sustainability?	projecting an eco-friendly image is not important for my organization	118	2.91	1.90	3	1
215	Why didn't you embrace innovations for environmental sustainability?	projecting an eco-friendly image of myself is not important	118	2.47	1.71	2	1
216	Why didn't you embrace innovations for environmental sustainability?	do not feel responsible to future generations	118	2.20	1.58	2	1
217	Why didn't you embrace innovations for environmental sustainability?	didn't know how to	118	3.60	1.92	4	1

218	Why didn't you embrace innovations for environmental sustainability?	was not valued in my department/unit or culture	118	3.38	2.02	3	1
219	Why didn't you embrace innovations for environmental sustainability?	because I thought I wouldn't be capable of doing it	118	2.80	1.80	3	1
220	Why didn't you embrace innovations for environmental sustainability?	was thoughtless	118	2.85	1.85	3	1
221	Why didn't you embrace innovations for environmental sustainability?	did not care	118	2.59	1.81	2	1

Appendix C3

Study 3: Descriptive Statistics for all Environmental Sustainability Motives Items Administered

Ungreen Behavioral Commission

[LF] = Item included on ESMS-LF; [SF] = Item included on ESMS-SF

Item #	Motive Question	Motive Items	*N*	*M*	*SD*	Median	Mode
1	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	environment was not important to me	235	2.19	1.41	2	1
2 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	for financial considerations	235	2.88	1.75	3	1
3	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	changing ways was not convenient	235	4.43	1.80	5	5
4	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	was required	235	3.63	2.01	4	1
5 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	out of habit or personal preference	235	4.01	1.76	4	4
6 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	would have been a hassle to change	235	4.31	1.71	5	5
7 [LF]	Why did you stick to typical ways of doing work, even though they were	for health reasons	235	2.41	1.67	2	1

	environmentally unfriendly?						
8 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	for safety reasons	235	2.63	1.77	2	1
9 [LF, SF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't need or want to help others	235	2.03	1.19	2	1
10 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	projecting an eco-friendly image is not important for my organization	235	3.26	1.76	3	1
11 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	projecting an eco-friendly image of myself is not important	235	2.76	1.57	2	1
12 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	do not feel responsible to future generations	235	2.25	1.38	2	1
13 [LF, SF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't know how to change	235	3.93	1.81	4	4
14 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	change was not valued in my department/unit or culture	235	3.49	1.76	3	5
15	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	because I thought I wouldn't be capable of changing	235	3.18	1.73	3	1
16 [LF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	was thoughtless	235	3.28	1.74	3	1
17 [LF, SF]	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	did not care	235	2.82	1.70	3	1

18 [LF]	Why did you pollute?	environment was not important to me	99	2.25	1.31	2	1
19	Why did you pollute?	for financial considerations	99	2.86	1.67	3	1
20 [LF]	Why did you pollute?	not polluting was less convenient	99	4.32	1.60	5	5
21 [LF]	Why did you pollute?	was required	99	3.23	1.97	3	1
22	Why did you pollute?	out of habit or personal preference	99	3.61	1.83	4	5
23	Why did you pollute?	would have been a hassle not to	99	4.08	1.66	4	5
24 [LF]	Why did you pollute?	for health reasons	99	2.34	1.49	2	1
25 [LF]	Why did you pollute?	for safety reasons	99	2.43	1.51	2	1
26	Why did you pollute?	didn't need or want to help others	99	1.94	1.12	2	1
27	Why did you pollute?	projecting an eco-friendly image is not important for my organization	99	3.09	1.65	3	1
28	Why did you pollute?	projecting an eco-friendly image of myself is not important	99	2.47	1.53	2	1
29	Why did you pollute?	do not feel responsible to future generations	99	2.30	1.38	2	1
30	Why did you pollute?	didn't know how to avoid it	99	4.62	1.56	5	5
31 [SF]	Why did you pollute?	not polluting was not valued in my department/unit or culture	99	3.00	1.64	3	1
32 [SF]	Why did you pollute?	because I thought I wouldn't be capable of not doing it	99	3.26	1.82	3	1
33 [LF]	Why did you pollute?	was careless	99	3.48	1.78	4	1
34 [LF]	Why did you pollute?	did not care	99	2.72	1.63	2	1
35	Why did you discourage employees who made environmental sustainability efforts?	environment was not important to me	44	2.52	1.27	2	1

36	Why did you discourage employees who made environmental sustainability efforts?	for financial considerations	44	3.02	1.47	3	4
37	Why did you discourage employees who made environmental sustainability efforts?	refrain from discouraging them would have been a hassle	44	2.93	1.37	3	4
38	Why did you discourage employees who made environmental sustainability efforts?	was required	44	2.77	1.46	3	1
39	Why did you discourage employees who made environmental sustainability efforts?	out of habit or personal preference	44	3.30	1.47	4	4
40	Why did you discourage employees who made environmental sustainability efforts?	not discouraging them wasn't easy option	44	2.86	1.36	3	4
41	Why did you discourage employees who made environmental sustainability efforts?	for health reasons	44	3.30	1.68	4	4
42	Why did you discourage employees who made environmental sustainability efforts?	for safety reasons	44	3.30	1.61	4	4
43	Why did you discourage employees who made environmental sustainability efforts?	didn't need or want to help others	44	2.57	1.21	3	4
44	Why did you discourage employees who made environmental sustainability efforts?	projecting an eco-friendly image is not important for my organization	44	2.82	1.35	3	4
45	Why did you discourage employees who made environmental sustainability efforts?	projecting an eco-friendly image of myself is not important	44	2.59	1.32	2	4
46	Why did you discourage employees who made environmental sustainability efforts?	do not feel responsible to future generations	44	2.75	1.56	2	1
47	Why did you discourage employees who made environmental sustainability efforts?	didn't know how to avoid it	44	3.07	1.30	3	4
48	Why did you discourage employees who made environmental sustainability efforts?	not discouraging wasn't valued in my department/unit or culture	44	2.59	1.13	3	3
49	Why did you discourage employees who made environmental sustainability efforts?	because I thought I wouldn't be capable of refraining from it	44	2.93	1.40	3	4

50	Why did you discourage employees who made environmental sustainability efforts?	was thoughtless	44	3.09	1.25	3	4
51	Why did you discourage employees who made environmental sustainability efforts?	did not care	44	2.61	1.20	3	4
52 [LF]	Why didn't you use public transportation or ride a bike to work?	environment was not important to me	206	1.96	1.25	1	1
53 [LF]	Why didn't you use public transportation or ride a bike to work?	for financial considerations	206	2.58	1.83	2	1
54 [LF, SF]	Why didn't you use public transportation or ride a bike to work?	was not available or convenient	206	5.43	1.87	6	7
55 [LF, SF]	Why didn't you use public transportation or ride a bike to work?	I was required not to	206	2.56	2.10	1	1
56 [LF, SF]	Why didn't you use public transportation or ride a bike to work?	out of habit or personal preference	206	4.80	1.88	5	5
57 [LF, SF]	Why didn't you use public transportation or ride a bike to work?	would have been a hassle	206	5.50	1.75	6	7
58	Why didn't you use public transportation or ride a bike to work?	for health reasons	206	2.23	1.61	2	1
59	Why didn't you use public transportation or ride a bike to work?	for safety reasons	206	3.24	2.11	3	1
60 [LF]	Why didn't you use public transportation or ride a bike to work?	didn't need or want to help others	206	1.87	1.23	1	1
61 [LF]	Why didn't you use public transportation or ride a bike to work?	projecting an eco-friendly image is not important for my organization	206	2.31	1.57	2	1
62 [LF]	Why didn't you use public transportation or ride a bike to work?	projecting an eco-friendly image of myself is not important	206	2.26	1.52	2	1
63 [LF]	Why didn't you use public transportation or ride a bike to work?	do not feel responsible to future generations	206	2.08	1.35	2	1
64 [LF]	Why didn't you use public transportation or	didn't know how to	206	2.48	1.81	2	1

	ride a bike to work?						
65 [LF]	Why didn't you use public transportation or ride a bike to work?	was not valued in my department/unit or culture	206	2.36	1.64	2	1
66 [LF]	Why didn't you use public transportation or ride a bike to work?	because I thought I wouldn't be capable of doing it	206	3.11	2.19	2	1
67 [LF, SF]	Why didn't you use public transportation or ride a bike to work?	was thoughtless	206	2.51	1.71	2	1
68 [LF]	Why didn't you use public transportation or ride a bike to work?	did not care	206	2.66	1.86	2	1
69 [LF, SF]	Why did you throw away something that could have been reused?	environment was not important to me	216	2.19	1.32	2	1
70 [LF, SF]	Why did you throw away something that could have been reused?	for financial considerations	216	2.34	1.49	2	1
71 [LF]	Why did you throw away something that could have been reused?	not throwing away was inconvenient	216	4.11	1.73	4	5
72 [LF]	Why did you throw away something that could have been reused?	was required	216	3.56	2.06	3	1
73 [LF]	Why did you throw away something that could have been reused?	out of habit or personal preference	216	4.04	1.65	4	5
74	Why did you throw away something that could have been reused?	would have been a hassle to reuse	216	4.16	1.67	4	5
75 [LF, SF]	Why did you throw away something that could have been reused?	for health reasons	216	2.98	1.96	2	1
76 [LF, SF]	Why did you throw away something that could have been reused?	for safety reasons	216	3.04	1.95	3	1
77 [LF]	Why did you throw away something that could have been reused?	didn't need or want to help others	216	2.14	1.25	2	1
78 [LF, SF]	Why did you throw away something that could have been reused?	projecting an eco-friendly image is not important for my organization	216	2.94	1.74	3	1
79 [LF, SF]	Why did you throw away something that	projecting an eco-friendly	216	2.65	1.51	3	1

	could have been reused?	image of myself is not important					
80 [LF, SF]	Why did you throw away something that could have been reused?	do not feel responsible to future generations	216	2.33	1.40	2	1
81 [LF]	Why did you throw away something that could have been reused?	didn't know how to reuse it	216	4.43	1.73	5	5
82 [LF]	Why did you throw away something that could have been reused?	reusing was not valued in my department/unit or culture	216	3.48	1.87	3	1
83	Why did you throw away something that could have been reused?	because I thought I wouldn't be capable of avoiding it	216	3.26	1.73	3	1
84 [LF]	Why did you throw away something that could have been reused?	was careless	216	3.73	1.64	4	4
85 [LF]	Why did you throw away something that could have been reused?	did not care	216	3.19	1.66	3	4

Appendix C4

Study 3: Descriptive Statistics for all Environmental Sustainability Motives Items Administered

Ungreen Behavior Avoidance

[LF] = Item included on ESMS-LF; [SF] = Item included on ESMS-SF

Item #	Motive Question	Motive Items	*N*	*M*	*SD*	Median	Mode
1 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for environmental benefits	110	4.98	1.62	5	5
2 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for financial considerations	110	3.23	1.80	3	1
3 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	changing ways was convenient	110	3.98	1.62	4	5
4 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	I was required to change	110	2.68	1.69	2	1
5	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	out of habit or personal preference	110	4.36	1.81	5	5
6 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't mind the extra effort	110	4.83	1.60	5	6
7 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for health reasons	110	3.27	1.73	3	1

8 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for safety reasons	110	2.93	1.64	3	1
9 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	desired to help others	110	4.05	1.87	4	3
10 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to contribute to or maintain my organization's eco-friendly image	110	3.48	1.95	3	1
11 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to contribute to or maintain my own eco-friendly image	110	3.55	1.79	4	5
12 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to fulfill my responsibility to future generations	110	4.06	1.81	4	4
13 [LF, SF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	because I knew how to change	110	4.65	1.55	5	5
14 [LF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	the change was valued in my department/unit or culture	110	3.56	1.85	3	2
15 [LF, SF]	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	because I thought I was capable of changing	110	4.74	1.57	5	5
16 [LF]	Why didn't you pollute?	for environmental benefits	246	5.13	1.82	6	7
17	Why didn't you pollute?	for financial considerations	246	2.88	1.83	3	1
18 [LF, SF]	Why didn't you pollute?	not polluting was convenient	246	4.41	1.77	5	5
19 [LF, SF]	Why didn't you pollute?	I was required not to	246	3.17	1.99	3	1
20 [LF, SF]	Why didn't you pollute?	out of habit or personal preference	246	5.26	1.64	6	6
21	Why didn't you pollute?	didn't mind the extra effort	246	5.03	1.66	5	6

22 [LF, SF]	Why didn't you pollute?	for health reasons	246	4.03	2.05	4	5
23	Why didn't you pollute?	for safety reasons	246	3.92	2.06	4	1
24 [LF, SF]	Why didn't you pollute?	desired to help others	246	4.07	1.92	4	5
25 [LF]	Why didn't you pollute?	to contribute to or maintain my organization's eco-friendly image	246	3.41	1.98	3	1
26 [LF]	Why didn't you pollute?	to contribute to or maintain my own eco-friendly image	246	3.57	1.90	3	1
27 [LF]	Why didn't you pollute?	to fulfill my responsibility to future generations	246	4.14	2.03	4	6
28 [LF]	Why didn't you pollute?	because I knew how not to	246	5.02	1.74	5	6
29 [LF, SF]	Why didn't you pollute?	not polluting was valued in my department/unit or culture	246	3.95	1.96	4	5
30 [LF]	Why didn't you pollute?	because I thought I was capable of avoiding it	246	5.04	1.81	5	6
31	Why didn't you discourage employees who made environmental sustainability efforts?	for environmental benefits	301	4.40	2.13	5	7
32 [LF, SF]	Why didn't you discourage employees who made environmental sustainability efforts?	for financial considerations	301	2.42	1.61	2	1
33	Why didn't you discourage employees who made environmental sustainability efforts?	not discouraging them was easy option	301	4.55	2.02	5	7
34	Why didn't you discourage employees who made environmental sustainability efforts?	I was required not to	301	2.36	1.70	2	1
35	Why didn't you discourage employees who made environmental sustainability efforts?	out of habit or personal preference	301	4.50	1.93	5	5
36	Why didn't you discourage employees who made environmental sustainability efforts?	it didn't take much effort to refrain from it	301	4.65	1.91	5	5
37 [LF]	Why didn't you discourage employees who made environmental sustainability efforts?	for health reasons	301	2.69	1.81	2	1
38	Why didn't you discourage employees who made environmental sustainability efforts?	for safety reasons	301	2.70	1.82	2	1

39 [LF]	Why didn't you discourage employees who made environmental sustainability efforts?	desired to help others	301	3.92	1.88	4	5
40	Why didn't you discourage employees who made environmental sustainability efforts?	to contribute to or maintain my organization's eco-friendly image	301	2.91	1.80	2	1
41	Why didn't you discourage employees who made environmental sustainability efforts?	to contribute to or maintain my own eco-friendly image	301	3.11	1.81	3	1
42 [LF, SF]	Why didn't you discourage employees who made environmental sustainability efforts?	to fulfill my responsibility to future generations	301	3.52	1.97	4	1
43	Why didn't you discourage employees who made environmental sustainability efforts?	because I knew how not to	301	3.71	2.01	4	1
44	Why didn't you discourage employees who made environmental sustainability efforts?	not discouraging was valued in my department/unit or culture	301	3.22	1.90	3	1
45	Why didn't you discourage employees who made environmental sustainability efforts?	because I thought I was capable of refraining from it	301	3.81	2.05	4	1
46	Why did you use public transportation or ride a bike to work?	for environmental benefits	139	4.27	1.80	4	5
47	Why did you use public transportation or ride a bike to work?	for financial considerations	139	5.04	1.94	6	7
48	Why did you use public transportation or ride a bike to work?	was available or convenient	139	5.67	1.54	6	7
49	Why did you use public transportation or ride a bike to work?	was required	139	2.51	2.03	1	1
50 [LF]	Why did you use public transportation or ride a bike to work?	out of habit or personal preference	139	5.27	1.70	6	6
51 [LF]	Why did you use public transportation or ride a bike to work?	didn't mind the extra effort	139	5.04	1.56	5	5
52	Why did you use public transportation or ride a bike to work?	for health reasons	139	3.71	2.16	4	1
53 [LF]	Why did you use public transportation or ride a	for safety reasons	139	3.12	1.99	3	1

	bike to work?						
54	Why did you use public transportation or ride a bike to work?	desired to help others	139	2.91	1.75	3	1
55	Why did you use public transportation or ride a bike to work?	to contribute to or maintain my organization's eco-friendly image	139	2.59	1.78	2	1
56 [SF]	Why did you use public transportation or ride a bike to work?	to contribute to or maintain my own eco-friendly image	139	3.07	1.81	3	1
57	Why did you use public transportation or ride a bike to work?	to fulfill my responsibility to future generations	139	3.31	1.80	3	1
58	Why did you use public transportation or ride a bike to work?	because I knew how to	139	5.40	1.60	6	7
59 [LF]	Why did you use public transportation or ride a bike to work?	was valued in my department/unit or culture	139	2.63	1.77	2	1
60 [LF]	Why did you use public transportation or ride a bike to work?	because I thought I was capable of doing it	139	5.36	1.61	6	5
61 [LF, SF]	Why didn't you throw away something that could have been reused?	for environmental benefits	129	4.57	1.89	5	5
62 [LF]	Why didn't you throw away something that could have been reused?	for financial considerations	129	3.79	2.00	4	5
63 [LF]	Why didn't you throw away something that could have been reused?	not throwing away was convenient	129	4.21	1.91	5	5
64 [LF]	Why didn't you throw away something that could have been reused?	I was required not to	129	2.73	1.84	2	1
65 [LF]	Why didn't you throw away something that could have been reused?	out of habit or personal preference	129	4.82	1.82	5	6
66 [LF, SF]	Why didn't you throw away something that could have been reused?	didn't mind the extra effort of reusing	129	4.88	1.76	5	6
67	Why didn't you throw away something that could have been reused?	for health reasons	129	2.74	1.82	2	1
68 [LF, SF]	Why didn't you throw away something that	for safety reasons	129	2.80	1.84	2	1

	could have been reused?						
69	Why didn't you throw away something that could have been reused?	desired to help others	129	3.57	1.89	3	1
70 [LF, SF]	Why didn't you throw away something that could have been reused?	to contribute to or maintain my organization's eco-friendly image	129	3.14	1.81	3	1
71 [LF]	Why didn't you throw away something that could have been reused?	to contribute to or maintain my own eco-friendly image	129	3.37	1.82	3	1
72	Why didn't you throw away something that could have been reused?	to fulfill my responsibility to future generations	129	3.56	1.94	4	1
73 [LF]	Why didn't you throw away something that could have been reused?	because I knew how to reuse it	129	5.05	1.69	5	6
74	Why didn't you throw away something that could have been reused?	reusing was valued in my department/unit or culture	129	3.77	1.94	4	4
75	Why didn't you throw away something that could have been reused?	because I thought I was capable of not throwing it away	129	4.36	1.90	5	5

Appendix D

Study 3: Internal Consistency Reliabilities for Personality Traits and Facets

Personality trait	Alpha
Neuroticism	.90
Anxiety	.71
Angry Hostility	.72
Depression	.78
Self–Consciousness	.67
Impulsiveness	.66
Vulnerability	.75
Extraversion	.91
Warmth	.81
Gregariousness	.78
Assertiveness	.79
Activity	.61
Excitement–Seeking	.66
Positive Emotions	.76
Openness	.88
Fantasy	.73
Aesthetics	.80
Feelings	.71
Actions	.61
Ideas	.81
Values	.67
Agreeableness	.90
Trust	.83
Straightforwardness	.71
Altruism	.75
Compliance	.65
Modesty	.79
Tender–Mindedness	.60
Conscientiousness	.92
Competence	.68
Order	.76
Dutifulness	.65
Achievement	.71
Self–Discipline	.82
Deliberation	.78

Appendix E

Study 3: Exploratory Factor Analyses of Individual Behavior Items

*Exploratory Factor Analysis of Motives for **Monitoring Environmental Impact: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Image	Extrinsic	Prosocial
Lack of self-efficacy	**.84**	–.05	.03	.06
Availability	**.83**	.08	.14	–.28
Lack of achievement drive	**.78**	–.01	–.07	.09
Lack of knowledge	**.68**	.08	.00	.06
Habit, personal preference	**.60**	–.03	.06	.15
Public relations	–.03	**.91**	–.06	–.01
Cultural norms	.08	**.73**	.11	–.02
Requirement	–.05	**.63**	.15	–.12
Self-image	.10	**.58**	–.07	.30
Health reasons	.06	–.07	**.88**	.12
Safety reasons	.01	.12	**.68**	.18
Financial/cost considerations	.04	.11	**.52**	–.10
Social responsibility	.03	.08	.19	**.73**
Environmental benefits	.45	–.02	–.15	**.59**
Altruism	.16	.02	.27	**.58**
Eigenvalue (unrotated solution)	6.14	2.40	1.16	1.1
% of variance	40.90	16.02	7.73	7.31

Factor Correlations				
Enabling Capabilities	—			
Image	.31	—		
Extrinsic	.37	.52	—	
Prosocial	.49	.11	.16	—

Note. Values in boldface indicate the highest factor loading for each item.

*Exploratory Factor Analysis of Motives for **Recycling: Green Behavior Performance***

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Image	Extrinsic
Social responsibility	**.83**	.07	–.01	.13
Environmental benefits	**.54**	.31	.07	.00
Altruism	**.49**	.07	–.02	.41
Self-image	**.49**	–.01	.45	.08
Lack of knowledge	.02	**.85**	–.02	–.04
Availability	–.24	**.73**	.13	–.02
Lack of achievement drive	.18	**.72**	–.05	–.01
Lack of self-efficacy	.18	**.71**	.04	.00
Habit, personal preference	.03	**.70**	–.08	.10
Public relations	.30	–.05	**.78**	–.01
Requirement	–.22	–.01	**.63**	.12
Cultural norms	.03	.20	**.62**	.12
Safety reasons	–.01	–.02	–.03	**.88**
Health reasons	.04	–.02	.00	**.85**
Financial/cost considerations	–.04	.07	.24	**.51**
Eigenvalue (unrotated solution)	5.69	2.50	1.51	1.02
% of variance	37.93	16.67	10.09	6.81

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.30	—		
Image	.16	.23	—	
Extrinsic	.33	.23	.51	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Developing or Implementing Environmental Initiatives: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Extrinsic	Image	Prosocial
Lack of knowledge	**.89**	.02	–.02	.06
Lack of self-efficacy	**.79**	.06	–.06	.06
Availability	**.64**	.03	.07	.00
Health reasons	–.02	**.84**	–.01	.26
Safety reasons	.24	**.68**	.07	–.11
Financial/cost considerations	.24	**.34**	.24	–.09
Public relations	.03	–.18	**.99**	.01
Self-image	–.04	.04	**.56**	.15
Cultural norms	.05	.23	**.52**	.06
Requirement	.05	.29	**.45**	–.33
Environmental benefits	.15	.00	.09	**.75**
Altruism	–.02	.34	.12	**.64**
Social responsibility	.13	.03	.01	**.53**
Lack of achievement drive	.38	–.22	.20	**.52**
Habit, personal preference	.35	–.03	–.01	**.38**
Eigenvalue (unrotated solution)	5.81	2.33	1.14	.99
% of variance	38.71	15.51	7.59	6.66

	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.32	—		
Prosocial	.41	.46	—	
Image	.52	.06	.16	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Using Resources Frugally: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Extrinsic	Prosocial	Image
Lack of knowledge	**.82**	.03	.05	–.07
Lack of self-efficacy	**.82**	.01	.09	.01
Lack of achievement drive	**.67**	–.05	.22	.07
Habit, personal preference	**.66**	–.04	.22	–.09
Availability	**.55**	.10	–.06	.07
Financial/cost considerations	**.51**	.02	–.15	.06
Safety reasons	.03	**.95**	–.00	–.03
Health reasons	.03	**.77**	.15	.06
Social responsibility	.06	.15	**.73**	.04
Environmental benefits	.25	.01	**.68**	.06
Altruism	.09	.37	**.55**	–.02
Self-image	.04	.12	**.48**	.39
Public relations	–.08	.02	.32	**.80**
Cultural norms	.23	–.05	–.05	**.70**
Requirement	–.01	.27	–.23	**.50**
Eigenvalue (unrotated solution)	6.15	2.00	1.52	.95
% of variance	41.01	13.32	10.10	6.33

	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.30	—		
Prosocial	.36	.29	—	
Image	.34	.48	.14	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Changing Work Habits to Be More Sustainable: Green Behavior Performance***

	Factor			
Motive Category	Enabling Characteristics	Prosocial	Image	Extrinsic
Lack of knowledge	**.88**	–.12	.01	–.02
Lack of self-efficacy	**.86**	–.07	–.04	.09
Habit, personal preference	**.75**	.16	.09	–.03
Lack of achievement drive	**.73**	.22	–.09	.00
Environmental benefits	**.49**	.39	.15	–.15
Availability	**.46**	–.15	.20	.21
Social responsibility	.12	**.75**	.10	.09
Altruism	.15	**.51**	.08	.35
Public relations	–.09	.02	**.96**	–.02
Cultural norms	.15	–.08	**.72**	.04
Self-image	–.01	.26	**.70**	–.01
Requirement	.05	–.24	**.49**	.26
Safety reasons	–.05	.10	–.03	**1.03**
Health reasons	.02	.13	.07	**.73**
Financial/cost considerations	.15	–.25	.13	**.41**
Eigenvalue (unrotated solution)	6.39	2.17	1.37	1.02
% of variance	42.62	14.44	9.11	6.80

	Factor Correlations			
Enabling Capabilities	—			
Prosocial	.29	—		
Image	.45	.14	—	
Extrinsic	.40	–.03	.56	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Finding New Uses for Discarded or Surplus Items: Green Behavior Performance***

	Factor			
Motive Category	Image	Enabling Capabilities	Prosocial	Extrinsic
Public relations	**.94**	–.09	.02	.02
Self-image	**.67**	–.03	.30	.00
Cultural norms	**.67**	.15	–.07	.06
Lack of knowledge	–.07	**.92**	–.02	–.06
Lack of self-efficacy	–.01	**.84**	.10	–.03
Lack of achievement drive	–.02	**.71**	.16	–.01
Habit, personal preference	.01	**.64**	.14	.01
Availability	.13	**.50**	–.24	–.02
Financial/cost considerations	.08	**.36**	–.16	.18
Social responsibility	.19	.04	**.72**	.27
Environmental benefits	.21	.18	**.62**	–.05
Altruism	.13	.33	**.41**	.28
Health reasons	–.07	.02	.10	**.92**
Safety reasons	.07	–.10	.04	**.86**
Requirement	.26	.06	–.33	**.44**
Eigenvalue (unrotated solution)	6.39	2.17	1.37	1.02
% of variance	42.62	14.44	9.11	6.80

	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.43	—		
Prosocial	.19	.13	—	
Image	.60	.24	.06	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Disposing of Waste Properly: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Extrinsic	Prosocial	Image
Lack of self-efficacy	**.81**	.04	.05	.04
Lack of knowledge	**.76**	.07	–.06	.03
Lack of achievement drive	**.75**	–.03	.10	–.02
Availability	**.72**	–.01	–.10	.00
Habit, personal preference	**.69**	–.04	.10	–.04
Safety reasons	.02	**.85**	.08	–.02
Health reasons	.02	**.82**	.10	–.01
Social responsibility	.08	.13	**.74**	.10
Altruism	.06	.18	**.68**	.07
Environmental benefits	.37	.01	**.48**	.08
Public relations	.00	–.12	.07	**.92**
Self-image	.06	–.09	.43	**.59**
Cultural norms	.19	.16	–.06	**.57**
Requirement	.06	.33	–.31	**.44**
Financial/cost considerations	–.06	.19	.14	**.36**
Eigenvalue (unrotated solution)	5.89	2.04	1.47	1.04
% of variance	39.24	13.62	9.83	6.93

	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.30	—		
Prosocial	.36	.14	—	
Image	.35	.50	.30	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Behaving in an Environmentally Responsible Way Even When Inconvenient: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Extrinsic	Prosocial	Image
Lack of knowledge	**.88**	.13	–.11	–.06
Lack of self-efficacy	**.86**	.01	–.02	.06
Availability	**.80**	–.07	–.05	.07
Lack of achievement drive	**.63**	–.09	.23	.03
Habit, personal preference	**.61**	.08	.16	–.04
Environmental benefits	**.28**	–.09	.65	.05
Safety reasons	.07	**.90**	.12	–.08
Health reasons	.03	**.69**	.25	.04
Financial/cost considerations	.01	**.34**	–.04	.11
Social responsibility	–.07	.13	**.85**	.05
Altruism	.11	.17	**.73**	–.02
Self-image	.09	.01	**.45**	.43
Public relations	.00	–.02	.13	**.90**
Cultural norms	.13	.12	–.04	**.69**
Requirement	–.05	.39	–.25	**.40**
Eigenvalue (unrotated solution)	6.07	2.34	1.39	.97
% of variance	40.44	15.62	9.30	6.48

Factor Correlations				
Enabling Capabilities	—			
Extrinsic	.23	—		
Prosocial	.50	.19	—	
Image	.30	.54	.17	—

Note. Values in boldface indicate the highest factor loading for each item.

*Exploratory Factor Analysis of Motives for **Making Environmentally Responsible Product Choices: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Image	Prosocial	Extrinsic
Lack of self-efficacy	**.84**	.06	.01	.02
Lack of knowledge	**.80**	–.04	–.01	.01
Availability	**.67**	.09	–.17	.04
Lack of achievement drive	**.60**	.03	.20	.01
Habit, personal preference	**.56**	–.06	.28	.04
Public relations	.01	**.90**	.13	–.04
Cultural norms	.16	**.69**	.08	.00
Requirement	–.11	**.60**	–.18	.29
Self-image	.18	**.54**	.35	–.04
Social responsibility	–.08	.11	**.82**	.12
Altruism	.07	.20	**.65**	.11
Environmental benefits	.29	–.09	**.52**	.10
Safety reasons	.00	.00	.03	**.82**
Health reasons	.11	–.05	.16	**.71**
Financial/cost considerations	.05	.32	–.04	**.37**
Eigenvalue (unrotated solution)	6.28	2.09	1.21	1.02
% of variance	41.87	13.92	8.10	6.78

	Factor Correlations			
Enabling Capabilities	—			
Image	.30	—		
Prosocial	.48	.23	—	
Extrinsic	.36	.52	.27	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Encouraging and Supporting Others to be Environmentally Responsible: Green Behavior Performance***

	Factor			
Motive Category	Prosocial	Image	Enabling Capabilities	Extrinsic
Lack of self-efficacy	**.79**	.07	.10	–.03
Lack of achievement drive	**.78**	.11	–.02	–.16
Lack of knowledge	**.77**	.04	.18	–.03
Environmental benefits	**.75**	.00	–.19	–.01
Habit, personal preference	**.68**	–.06	.05	.10
Altruism	**.59**	–.08	–.17	.32
Social responsibility	**.38**	.08	–.34	.34
Public relations	–.02	**.97**	–.04	–.03
Cultural norms	.06	**.70**	–.02	.08
Requirement	–.08	**.46**	.36	.15
Self-image	.32	**.43**	–.13	.13
Availability	.44	.04	**.49**	.13
Safety reasons	–.05	.10	.06	**.85**
Health reasons	.02	.21	–.07	**.66**
Financial/cost considerations	.01	.07	.40	**.52**
Eigenvalue (unrotated solution)	6.10	2.31	1.13	.96
% of variance	40.69	15.41	7.52	6.42
	Factor Correlations			
Prosocial	—			
Image	.34	—		
Enabling Capabilities	–.05	.16	—	
Extrinsic	.39	.54	.14	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Generating Creative Ideas Relating to Environmental Sustainability: Green Behavior Performance***

	Factor			
Motive Category	Prosocial	Image	Enabling Capabilities	Extrinsic
Environmental benefits	**.81**	–.05	.13	–.27
Lack of achievement drive	**.79**	–.17	.19	.06
Social responsibility	**.77**	.20	–.19	.07
Habit, personal preference	**.64**	–.18	.03	.25
Altruism	**.60**	.04	.19	.04
Self-image	**.53**	.29	–.12	.18
Lack of self-efficacy	**.49**	–.19	.24	.39
Requirement	–.16	**.74**	.14	.04
Public relations	.35	**.54**	.13	.13
Cultural norms	.31	**.47**	–.10	.24
Lack of knowledge	.40	.10	**.73**	–.12
Availability	.05	.02	**.58**	.36
Financial/cost considerations	–.12	.36	**.47**	.12
Safety reasons	–.08	.11	.06	**.87**
Health reasons	.21	.25	.11	**.53**
Eigenvalue (unrotated solution)	6.47	2.23	1.23	.91
% of variance	43.11	14.87	8.17	6.07
	Factor Correlations			
Prosocial	—			
Image	.13	—		
Enabling Capabilities	.30	.18	—	
Extrinsic	.36	.42	.28	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Trying to Repair Environmental Damage: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Prosocial	Extrinsic	Image
Lack of self-efficacy	**.86**	.06	–.02	.05
Lack of achievement drive	**.76**	–.08	–.06	.02
Lack of knowledge	**.68**	.07	.21	–.11
Availability	**.63**	.43	.12	.04
Environmental benefits	**.53**	–.03	–.12	.18
Cultural norms	**.51**	.50	.10	.12
Altruism	**.47**	–.27	.23	.27
Habit, personal preference	**.41**	–.23	.25	.03
Requirement	.02	**.68**	.04	–.05
Social responsibility	.37	**–.43**	.18	.38
Health reasons	.11	–.12	**.90**	–.01
Safety reasons	.08	–.01	**.87**	.00
Financial/cost considerations	–.25	.33	**.62**	.17
Self-image	–.10	–.16	.06	**.89**
Public relations	.10	.17	–.02	**.65**
Eigenvalue (unrotated solution)	5.80	2.03	1.69	1.16
% of variance	38.67	13.55	11.24	7.71

	Factor Correlations			
Enabling Capabilities	—			
Prosocial	–.02	—		
Extrinsic	.33	.12	—	
Image	.42	–.06	.35	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Embracing Eco-friendly Innovations: Green Behavior Performance***

	Factor			
Motive Category	Enabling Capabilities	Extrinsic	Prosocial	Image
Lack of knowledge	**.83**	.00	–.03	–.04
Lack of self-efficacy	**.76**	–.03	.06	.06
Availability	**.74**	.02	–.14	–.04
Lack of achievement drive	**.65**	–.03	.15	.03
Habit, personal preference	**.58**	.01	.20	.04
Safety reasons	–.13	**.99**	.02	.00
Health reasons	–.03	**.77**	.16	–.03
Financial/cost considerations	.15	**.53**	–.17	.06
Social responsibility	.14	.12	**.68**	.11
Environmental benefits	.29	.05	**.54**	.09
Altruism	.17	.31	**.54**	.13
Requirement	.15	.27	**–.46**	.28
Public relations	–.13	–.08	–.04	**1.01**
Cultural norms	.09	.02	–.01	**.68**
Self-image	.07	.11	.25	**.56**
Eigenvalue (unrotated solution)	5.63	2.14	1.42	1.16
% of variance	37.51	14.24	9.45	7.74

	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.38	—		
Prosocial	.31	.10	—	
Image	.42	.53	.08	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Monitoring Environmental Impacts:***

Green Behavior Omission

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Apathy	**.79**	–.13	.09	–.01
Environmental benefits	**.76**	.03	–.13	.16
Altruism	**.64**	.16	–.06	.02
Self-image	**.63**	–.02	–.16	.24
Social responsibility	**.60**	.09	–.03	.09
Carelessness	**.57**	.00	.15	–.07
Habit, personal preference	**.48**	–.02	.25	–.13
Safety reasons	–.05	**.93**	.02	–.01
Health reasons	.05	**.84**	–.05	–.04
Financial/cost considerations	.05	**.39**	.30	.18
Lack of achievement drive	.41	–.06	**.67**	–.14
Availability	–.13	–.01	**.62**	.13
Lack of knowledge	.03	.01	**.58**	–.01
Lack of self-efficacy	.03	.08	**.54**	.06
Public relations	.11	–.08	.03	**.83**
Cultural norms	–.05	.05	.11	**.82**
Requirement	.10	.08	.03	**.32**
Eigenvalue (unrotated solution)	4.94	2.21	1.95	1.27
% of variance	29.03	13.01	11.48	7.45

	Factor Correlations			
Prosocial	—			
Extrinsic	.18	—		
Enabling Capabilities	.27	.17	—	
Image	.28	.38	.08	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Recycling: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Habit, personal preference	**.90**	–.11	.38	–.10
Environmental benefits	**.88**	.07	–.01	–.06
Social responsibility	**.76**	.02	–.24	.11
Self-image	**.75**	–.13	.08	.29
Apathy	**.67**	.17	.09	.08
Carelessness	**.66**	.16	–.11	.11
Altruism	**.60**	.26	–.25	.06
Health reasons	.12	**.80**	–.01	–.26
Financial/cost considerations	.03	**.53**	.05	.10
Safety reasons	.07	**.48**	–.04	.08
Requirement	–.28	**.46**	.01	.32
Lack of knowledge	.07	**.41**	.18	.25
Lack of self-efficacy	.01	**.33**	.02	–.03
Lack of achievement drive	.15	.19	**.75**	–.09
Availability	–.17	–.04	**.65**	.19
Public relations	.21	.08	.05	**.83**
Cultural norms	.22	–.03	.07	**.78**
Eigenvalue (unrotated solution)	5.87	2.34	1.69	1.31
% of variance	34.56	13.74	9.94	7.73

	Factor Correlations			
Prosocial	—			
Extrinsic	.28	—		
Enabling Capabilities	.02	.08	—	
Image	.19	.31	.17	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Developing or Implementing***

Environmental Initiatives: Green Behavior Omission

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Extrinsic	Image
Environmental benefits	**.86**	–.13	–.05	.05
Apathy	**.84**	–.08	–.11	.00
Self-image	**.73**	–.10	.03	.22
Social responsibility	**.70**	.02	.11	.00
Altruism	**.66**	–.13	.21	.08
Carelessness	**.61**	.06	–.06	.12
Habit, personal preference	**.58**	.20	.15	–.11
Lack of achievement drive	**.51**	.48	–.02	–.05
Lack of knowledge	–.10	**.73**	.01	.05
Lack of self-efficacy	–.02	**.68**	.08	.06
Availability	–.01	**.59**	–.08	.06
Health reasons	.02	–.14	**.93**	.01
Safety reasons	.00	–.06	**.89**	.00
Financial/cost considerations	.07	.20	**.55**	.03
Public relations	.07	.02	–.02	**.85**
Cultural norms	.08	.05	**–.03**	**.76**
Requirement	–.03	.09	.20	**.26**
Eigenvalue (unrotated solution)	5.79	2.29	1.92	1.22
% of variance	34.05	13.49	11.31	7.17

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.15	—		
Extrinsic	.29	.17	—	
Image	.40	.31	.29	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Using Resources Frugally: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Image	Enabling Capabilities
Self-image	**.77**	–.01	.25	–.06
Environmental benefits	**.76**	–.03	.15	.00
Social responsibility	**.75**	.17	–.16	.11
Altruism	**.68**	.26	–.08	.05
Apathy	**.56**	–.04	.08	.28
Health reasons	.09	**.92**	–.01	–.14
Safety reasons	.09	**.81**	.08	–.03
Financial/cost considerations	.09	**.52**	.02	.25
Requirement	–.15	**.37**	.37	.24
Cultural norms	.00	.13	**.80**	.00
Public relations	.17	–.09	**.76**	.03
Lack of achievement drive	.02	–.07	.11	**.81**
Availability	.03	–.08	.08	**.72**
Habit, personal preference	.26	–.13	.02	**.57**
Carelessness	.40	–.15	–.12	**.50**
Lack of self-efficacy	.06	.26	.05	**.57**
Lack of knowledge	–.03	.09	–.02	**.50**
Eigenvalue (unrotated solution)	6.21	2.36	1.54	1.30
% of variance	36.54	13.87	9.06	7.67

	Factor Correlations			
Prosocial	—			
Extrinsic	.16	—		
Image	.19	.25	—	
Enabling Capabilities	.52	.22	.30	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Changing Work Habits to Be More Sustainable: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Image	Enabling Capabilities
Environmental benefits	**.85**	.08	.17	–.14
Apathy	**.82**	–.18	.04	.06
Social responsibility	**.77**	.20	.00	.00
Self-image	**.71**	–.04	.20	–.01
Altruism	**.64**	.31	–.01	–.03
Carelessness	**.56**	.02	.00	.20
Habit, personal preference	**.48**	–.01	–.14	.46
Health reasons	.06	**.87**	–.10	–.13
Safety reasons	.04	**.76**	–.05	.01
Financial/cost considerations	.07	**.56**	.04	.24
Requirement	–.06	**.45**	.09	.02
Public relations	.27	.02	**.88**	–.10
Cultural norms	.09	.01	**.74**	.13
Availability	.21	.06	–.14	**.72**
Lack of achievement drive	.33	.02	–.10	**.70**
Lack of knowledge	–.17	–.01	.18	**.46**
Lack of self-efficacy	–.06	.20	.19	**.40**
Eigenvalue (unrotated solution)	5.85	2.05	1.72	1.63
% of variance	34.42	12.05	10.14	9.61

Factor Correlations				
Prosocial	—			
Extrinsic	.26	—		
Image	.13	.16	—	
Enabling Capabilities	.27	.23	.19	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Finding New Uses for Discarded or Surplus Items: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Environmental benefits	**.91**	.09	–.08	.03
Altruism	**.81**	.21	–.05	.00
Social responsibility	**.76**	.13	.05	–.05
Apathy	**.72**	–.16	.10	.01
Self-image	**.71**	–.04	–.04	.26
Carelessness	**.51**	–.07	.29	.00
Habit, personal preference	**.46**	.00	.30	.08
Safety reasons	.08	**.92**	–.02	–.06
Health reasons	.05	**.91**	–.04	–.03
Financial/cost considerations	.08	**.48**	.15	.14
Requirement	–.06	**.32**	.09	.26
Lack of achievement drive	.19	–.08	**.79**	–.06
Availability	.18	–.05	**.65**	.06
Lack of self-efficacy	–.08	.19	**.60**	.01
Lack of knowledge	–.06	–.01	**.60**	.07
Cultural norms	–.06	.02	.06	**.92**
Public relations	.23	–.02	–.03	**.75**
Eigenvalue (unrotated solution)	6.52	2.31	1.62	1.18
% of variance	38.33	13.57	9.55	6.94

Factor Correlations				
Prosocial	—			
Extrinsic	.15	—		
Enabling Capabilities	.44	.20	—	
Image	.36	.33	.41	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Disposing of Waste Properly: Green Behavior Omission***

	Factor		
Motive Category	Prosocial	Extrinsic	Enabling Capabilities
Environmental benefits	**.94**	.09	.13
Altruism	**.90**	.08	–.12
Social responsibility	**.88**	.16	–.06
Self-image	**.83**	–.01	.14
Apathy	**.82**	–.11	.08
Habit, personal preference	**.75**	.11	.09
Carelessness	**.57**	.01	–.09
Public relations	**.40**	.01	.35
Lack of achievement drive	**.29**	–.05	.51
Financial/cost considerations	.17	**.89**	–.05
Health reasons	–.02	**.82**	–.16
Safety reasons	.13	**.77**	.13
Availability	–.09	–.17	**.73**
Lack of knowledge	.18	.05	**.52**
Cultural norms	.21	–.07	**.51**
Requirement	–.28	.23	**.46**
Lack of self-efficacy	–.28	.17	**.40**
Eigenvalue (unrotated solution)	6.52	2.31	1.62
% of variance	38.33	13.57	9.55

Factor Correlations			
Prosocial	—		
Extrinsic	.02	—	
Enabling Capabilities	.13	.14	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Behaving in an Environmentally Responsible Way Even When Inconvenient: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Extrinsic	Image
Environmental benefits	**.82**	–.12	.09	.10
Self-image	**.82**	.00	.03	.19
Apathy	**.81**	–.02	–.01	.00
Social responsibility	**.74**	.02	.04	.09
Altruism	**.72**	–.10	.08	.02
Carelessness	**.67**	.10	–.11	–.04
Lack of knowledge	–.12	**.74**	.06	.06
Lack of self-efficacy	.02	**.62**	.15	.06
Availability	–.11	**.55**	–.04	.21
Habit, personal preference	.43	**.52**	–.04	–.17
Lack of achievement drive	.28	**.31**	–.03	–.04
Health reasons	.04	–.06	**.99**	–.17
Safety reasons	.05	–.07	**.76**	–.09
Financial/cost considerations	.07	.09	**.54**	.13
Requirement	–.12	.21	**.38**	.14
Cultural norms	.11	.09	.01	**.83**
Public relations	.17	.01	–.08	**.89**
Eigenvalue (unrotated solution)	4.98	2.68	2.11	1.35
% of variance	29.27	15.75	12.40	7.94
Factor Correlations				
Prosocial	—			
Enabling Capabilities	.20	—		
Extrinsic	.03	.16	—	
Image	.13	.32	.13	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Making Environmentally Responsible Product Choices: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Social responsibility	**.84**	–.07	–.02	.09
Environmental benefits	**.80**	.08	–.11	.12
Apathy	**.78**	–.02	.03	.06
Altruism	**.75**	.10	–.02	–.08
Self-image	**.73**	–.04	–.16	.32
Carelessness	**.62**	.02	.14	–.14
Habit, personal preference	**.49**	.04	.33	–.08
Lack of achievement drive	**.39**	.00	.49	–.01
Health reasons	.02	**.96**	–.04	–.13
Safety reasons	.06	**.93**	–.10	–.10
Requirement	–.01	**.38**	.17	.25
Financial/cost considerations	–.03	**.37**	.09	.20
Lack of knowledge	.03	–.07	**.83**	–.11
Lack of self-efficacy	–.01	.05	**.56**	.06
Availability	–.05	.04	**.43**	.13
Cultural norms	.07	.00	.05	**.80**
Public relations	.09	–.01	.05	**.76**
Eigenvalue (unrotated solution)	5.43	2.29	1.69	1.59
% of variance	31.92	13.48	9.37	6.20

Factor Correlations				
Prosocial	—			
Extrinsic	.16	—		
Enabling Capabilities	.30	.25	—	
Image	.24	.22	.21	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Encouraging and Supporting Others to Be Environmentally Responsible: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Image	Enabling Capabilities
Environmental benefits	**.86**	.03	.04	–.14
Self-image	**.74**	–.04	.16	–.10
Apathy	**.73**	–.10	–.05	.08
Social responsibility	**.70**	.07	.08	.03
Altruism	**.64**	.22	.00	.07
Carelessness	**.48**	.02	.03	.24
Health reasons	–.03	**.93**	–.03	–.10
Safety reasons	.04	**.91**	–.08	.00
Financial/cost considerations	.01	**.70**	.12	.09
Cultural norms	–.02	–.07	**.97**	.05
Public relations	.14	.02	**.74**	–.04
Requirement	.06	.21	**.31**	.09
Availability	.22	.00	.03	**.65**
Lack of knowledge	–.06	–.03	–.02	**.64**
Lack of achievement drive	.33	–.03	.02	**.60**
Lack of self-efficacy	–.15	.12	.18	**.51**
Habit, personal preference	.45	.08	–.13	**.46**
Eigenvalue (unrotated solution)	5.86	2.38	1.61	1.42
% of variance	34.50	13.98	9.46	8.38

	Factor Correlations			
Prosocial	—			
Extrinsic	.20	—		
Image	.28	.35	—	
Enabling Capabilities	.37	.26	.26	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Generating Creative Ideas Relating to Environmental Sustainability: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Extrinsic	Image
Environmental benefits	**.86**	–.14	.01	.05
Apathy	**.78**	.06	–.05	.03
Social responsibility	**.73**	–.08	.22	.01
Self-image	**.69**	–.02	–.03	.20
Altruism	**.66**	–.04	.23	.02
Habit, personal preference	**.56**	.35	.04	–.13
Carelessness	**.54**	.21	–.01	.00
Lack of achievement drive	.28	**.71**	–.10	.11
Lack of knowledge	–.12	**.66**	.04	–.03
Availability	.21	**.64**	–.07	.06
Lack of self-efficacy	–.03	**.57**	.13	.08
Safety reasons	.05	.00	**.91**	–.04
Health reasons	.13	–.04	**.82**	–.02
Financial/cost considerations	–.02	.20	**.43**	.30
Public relations	.09	–.04	–.05	**.81**
Cultural norms	–.01	.04	.01	**.80**
Requirement	.01	.08	.21	**.23**
Eigenvalue (unrotated solution)	6.49	1.84	1.67	1.29
% of variance	38.17	10.84	9.82	7.58

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.34	—		
Extrinsic	.37	.25	—	
Image	.37	.32	.35	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Trying to Repair Environmental Damage: Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Apathy	**.80**	–.16	–.07	.08
Environmental benefits	**.79**	.04	–.22	.12
Self-image	**.77**	–.05	–.09	.09
Altruism	**.74**	.16	–.10	.04
Social responsibility	**.69**	.16	–.08	.03
Carelessness	**.65**	.05	.10	–.08
Habit, personal preference	**.62**	.09	.27	–.11
Lack of achievement drive	**.61**	–.01	.34	–.02
Requirement	**.21**	.17	.11	.16
Health reasons	–.07	**.94**	–.08	.04
Safety reasons	–.01	**.85**	–.04	.02
Financial/cost considerations	.12	**.59**	.09	.07
Lack of knowledge	–.08	.04	**.71**	.00
Availability	–.03	–.17	**.55**	.13
Lack of self-efficacy	.15	.24	**.52**	.03
Cultural norms	–.09	.06	.08	**.84**
Public relations	.15	.02	.01	**.76**
Eigenvalue (unrotated solution)	6.18	1.92	1.79	1.30
% of variance	36.38	11.28	10.55	7.63

	Factor Correlations			
Prosocial	—			
Extrinsic	.42	—		
Enabling Capabilities	.17	.10	—	
Image	.34	.26	.21	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Embracing Eco-friendly Innovations***

Motive: Green Behavior Omission

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Extrinsic	Image
Environmental benefits	**.94**	–.09	–.01	.00
Apathy	**.91**	–.11	–.01	.00
Altruism	**.83**	–.03	.04	–.03
Self-image	**.83**	.01	.08	.15
Social responsibility	**.74**	–.06	.16	.03
Carelessness	**.64**	.22	–.05	–.01
Habit, personal preference	**.53**	.43	.04	.03
Lack of knowledge	.05	**.81**	.02	–.06
Lack of self-efficacy	–.06	**.68**	.25	.03
Lack of achievement drive	.35	**.46**	.08	.19
Health reasons	.01	–.05	**.92**	.00
Safety reasons	.03	.09	**.76**	.00
Financial/cost considerations	.11	.27	**.41**	.06
Public relations	.20	–.25	.06	**.84**
Cultural norms	.07	.11	.02	**.79**
Requirement	–.07	.06	.37	**.40**
Availability	–.06	.28	–.18	**.31**
Eigenvalue (unrotated solution)	6.41	2.43	1.67	1.39
% of variance	37.72	14.27	9.80	8.20

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.21	—		
Extrinsic	.25	.20	—	
Image	.31	.33	.17	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Sticking to Typical Ways of Work, Even Though Environmentally Unfriendly: Ungreen Behavior Commission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Environmental benefits	**.84**	.06	–.11	.13
Altruism	**.76**	.19	–.02	–.01
Self-image	**.75**	.00	–.01	.17
Social responsibility	**.73**	.10	.04	.08
Apathy	**.72**	–.10	.10	.02
Carelessness	**.39**	–.08	.31	–.03
Health reasons	.11	**.87**	–.02	–.13
Safety reasons	.15	**.80**	–.06	–.05
Financial/cost considerations	.01	**.46**	.24	.16
Requirement	–.26	**.41**	.03	.19
Availability	–.01	–.06	**.84**	–.02
Lack of achievement drive	.09	–.05	**.76**	–.08
Lack of knowledge change	–.13	.09	**.53**	.16
Habit, personal preference	.31	–.01	**.44**	–.08
Lack of self-efficacy	–.07	.19	**.44**	.20
Cultural norms	.10	–.03	.03	**.80**
Public relations	.23	–.04	–.01	**.78**
Eigenvalue (unrotated solution)	5.06	2.53	1.98	1.27
% of variance	29.74	14.89	11.63	7.48

	Factor Correlations			
Prosocial	—			
Extrinsic	.02	—		
Enabling Capabilities	.27	.14	—	
Image	.15	.35	.29	—

Note. Values in boldface indicate the highest factor loading for each item.

*Exploratory Factor Analysis of Motives for **Polluting: Ungreen Behavior Commission***

	Factor			
Motive Category	Prosocial	Image	Enabling Capabilities	Extrinsic
Environmental benefits	**.95**	–.01	–.05	–.06
Social responsibility	**.81**	–.07	–.02	.09
Self-image	**.74**	.08	.17	.05
Altruism	**.74**	.06	–.13	.06
Apathy	**.65**	–.15	.14	–.04
Cultural norms	**.42**	.36	.16	.04
Public relations	**.34**	.21	.32	.16
Requirement	.07	**.74**	–.13	.19
Lack of self-efficacy	.12	**.56**	.13	.07
Lack of knowledge	–.34	**.51**	.11	–.05
Carelessness	.32	**–.48**	.47	.11
Availability	–.10	–.01	**.75**	.00
Habit, personal preference	.22	–.13	**.60**	.04
Lack of achievement drive	.04	.23	**.50**	–.07
Safety reasons	–.04	.00	–.06	**.92**
Health reasons	.08	.02	–.18	**.92**
Financial/cost considerations	–.05	.05	.27	**.46**
Eigenvalue (unrotated solution)	5.50	2.55	1.89	1.27
% of variance	32.37	15.01	11.14	7.46

Factor Correlations				
Prosocial	—			
Image	–.06	—		
Enabling Capabilities	.35	.15	—	
Extrinsic	.36	.22	.15	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Discouraging Employees Who Made Environmentally Sustainable Efforts: Ungreen Behavior Commission***

	Factor	
Motive Category	Prosocial	Extrinsic
Altruism	**.99**	–.12
Apathy	**.92**	–.13
Cultural norms	**.90**	–.01
Self-image	**.81**	.11
Availability	**.81**	.04
Environmental benefit	**.75**	.09
Carelessness	**.74**	–.09
Public relations	**.66**	.21
Social responsibility	**.65**	.18
Lack of self-efficacy	**.61**	.22
Habit, personal preference	**.61**	.00
Lack of achievement drive	**.48**	.06
Safety reasons	–.12	**.92**
Health reasons	.07	**.85**
Lack of knowledge	.10	**.74**
Requirement	.14	**.63**
Financial/cost considerations	.05	**.63**
Eigenvalue (unrotated solution)	9.57	1.69
% of variance	56.27	9.94
	Factor Correlations	
Prosocial	—	
Extrinsic	.64	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Using Public Transportation Motive: Ungreen Behavior Commission***

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Image	Extrinsic
Environmental benefits	**.80**	.06	–.03	–.02
Altruism	**.79**	.10	–.07	–.03
Self-image	**.76**	–.05	.03	.07
Social responsibility	**.72**	.06	–.07	.13
Apathy	**.64**	–.26	.43	.13
Carelessness	**.51**	–.09	.21	.10
Financial/cost considerations	**.31**	.26	–.06	.08
Lack of self-efficacy	.02	**.54**	.06	.05
Safety reasons	–.02	**.48**	.05	.11
Availability	–.11	**.45**	.28	–.15
Lack of knowledge	.18	**.35**	–.06	.06
Health reasons	.32	**.32**	–.14	.08
Lack of achievement drive	–.15	.31	**.79**	.02
Habit, personal preference	.12	.00	**.50**	.04
Cultural norms	–.11	.03	.04	**.98**
Public relations	.39	–.02	.01	**.45**
Requirement	.16	.22	.01	**.34**
Eigenvalue (unrotated solution)	5.68	2.02	1.45	.95
% of variance	33.42	11.89	8.55	5.60

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.18	—		
Image	.04	.14	—	
Extrinsic	.67	.24	.07	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Throwing Away Something that Could Have Been Reused: Ungreen Behavior Commission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Environmental benefits	**.90**	.00	–.06	.06
Social responsibility	**.87**	.07	–.02	–.02
Altruism	**.80**	.09	–.05	.02
Self-image	**.67**	–.01	.02	.19
Apathy	**.60**	–.22	.13	.03
Financial/cost considerations	**.38**	.31	.09	.14
Carelessness	**.32**	–.23	.27	.01
Health reasons	–.01	**.87**	.09	–.05
Safety reasons	.04	**.83**	–.01	–.09
Requirement	–.06	**.63**	–.09	.31
Lack of achievement drive	.09	.08	**.63**	–.05
Availability	.03	–.07	**.61**	–.01
Lack of knowledge	–.20	.00	**.46**	.16
Habit, personal preference	.33	–.01	**.45**	–.12
Lack of self-efficacy	.04	.30	**.43**	.20
Cultural norms	.05	.01	.03	**.82**
Public relations	.30	–.02	.06	**.56**
Eigenvalue (unrotated solution)	5.08	2.79	1.70	1.11
% of variance	29.86	16.42	9.99	6.53

	Factor Correlations			
Prosocial	—			
Extrinsic	–.01	—		
Enabling Capabilities	.34	–.01	—	
Image	.23	.30	.30	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Sticking to Typical Ways of Work, Even Though They Were Environmentally Unfriendly: Ungreen Behavior Avoidance***

	Factor			
Motive Category	Prosocial	Image	Enabling Capabilities	Extrinsic
Lack of self-efficacy	**.82**	.13	.19	–.14
Environmental benefits	**.82**	.01	–.17	.05
Lack of achievement drive	**.75**	.07	.06	–.04
Lack of knowledge	**.73**	.06	.40	–.08
Social responsibility	**.58**	–.09	–.10	.35
Habit, personal preference	**.56**	–.09	.04	.28
Public relations	.08	**.85**	–.18	.12
Requirement	–.14	**.60**	.15	.02
Cultural norms	.32	**.58**	–.16	.06
Availability	.19	–.05	**.66**	.25
Health reasons	.02	.05	.06	**.78**
Safety reasons	–.15	.17	.13	**.72**
Altruism	.46	.02	–.13	**.49**
Self-image	.22	.35	–.08	**.45**
Financial/cost considerations	.14	.14	.18	**.30**
Eigenvalue (unrotated solution)	6.39	1.94	1.19	1.07
% of variance	42.58	12.92	7.92	7.13
Factor Correlations				
Prosocial	—			
Image	.24	—		
Enabling Capabilities	.14	.12	—	
Extrinsic	.44	.42	.13	—

Note. Values in boldface indicate the highest factor loading for each item.

*Exploratory Factor Analysis of Motives for **Not Polluting: Ungreen Behavior Avoidance***

	Factor			
Motive Category	Enabling Capabilities	Image	Prosocial	Extrinsic
Lack of knowledge	**.82**	–.09	–.02	.10
Habit, personal preference	**.77**	.03	.05	–.11
Lack of self-efficacy	**.75**	.05	.06	–.01
Lack of achievement drive	**.67**	.06	.13	.01
Availability	**.50**	.07	–.21	.15
Public relations	–.08	**.93**	.00	–.01
Cultural norms	.17	**.65**	.03	–.03
Self-image	.08	**.64**	.26	–.03
Requirement	.09	**.43**	–.21	.24
Social responsibility	.15	.13	**.58**	.31
Environmental benefits	.36	.05	**.51**	.17
Altruism	.07	.30	**.49**	.26
Safety reasons	.03	.00	.12	**.79**
Health reasons	.13	–.02	.09	**.79**
Financial/cost considerations	–.02	.35	–.12	**.37**
Eigenvalue (unrotated solution)	6.96	1.53	1.12	.94
% of variance	46.37	10.21	7.48	6.28

	Factor Correlations			
Enabling Capabilities	—			
Image	.49	—		
Prosocial	.34	.19	—	
Extrinsic	.58	.57	.16	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Discouraging Employees Who Made Environmentally Sustainable Efforts: Ungreen Behavior Avoidance***

	Factor			
Motive Category	Prosocial	Enabling Capabilities	Image	Extrinsic
Environmental benefits	**.78**	.15	–.08	.01
Social responsibility	**.74**	–.03	.11	.13
Altruism	**.68**	.14	.07	.16
Self-image	**.50**	–.03	.46	.03
Lack of self-efficacy	–.01	**.76**	–.03	.17
Lack of knowledge	.04	**.69**	.12	.04
Lack of achievement drive	.08	**.68**	–.05	–.03
Availability	–.08	**.61**	.05	–.12
Habit, personal preference	.21	**.55**	–.04	.09
Public relations	.23	–.06	**.76**	–.01
Cultural norms	.09	.14	**.47**	.03
Requirement	–.19	.07	**.47**	.15
Health reasons	.05	–.03	–.04	**.84**
Safety reasons	.08	.01	–.02	**.81**
Financial/cost considerations	–.03	.05	.28	**.55**
Eigenvalue (unrotated solution)	5.62	2.01	1.41	1.07
% of variance	37.45	13.41	9.43	7.11

	Factor Correlations			
Prosocial	—			
Enabling Capabilities	.34	—		
Image	.27	.29	—	
Extrinsic	.38	.25	.49	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Using Public Transportation or Biking to Work: Ungreen Behavior Avoidance***

	Factor			
Motive Category	Image	Enabling Capabilities	Extrinsic	Prosocial
Cultural norms	**.81**	–.09	.05	.07
Public relations	**.73**	–.07	.01	.15
Self-image	**.69**	–.07	.02	.24
Safety reasons	**.63**	.05	.18	–.02
Health reasons	**.58**	.16	–.15	–.11
Altruism	**.57**	–.06	.20	.31
Availability	–.07	**.88**	.17	–.05
Lack of self-efficacy	.11	**.87**	–.08	–.07
Lack of knowledge	–.05	**.83**	.14	.07
Habit, personal preference	–.08	**.68**	.01	.12
Lack of achievement drive	.09	**.63**	–.33	.21
Financial/cost considerations	.21	**.51**	–.22	–.09
Requirement	.14	.08	**.74**	–.04
Social responsibility	.19	.06	–.01	**.79**
Environmental benefits	.17	.25	–.17	**.52**
Eigenvalue (unrotated solution)	5.64	3.04	1.25	.87
% of variance	37.60	20.30	8.30	5.80

Factor Correlations				
Image	—			
Enabling Capabilities	.28	—		
Extrinsic	.05	–.20	—	
Prosocial	.53	.17	–.02	—

Note. Values in boldface indicate the highest factor loading for each item.

Exploratory Factor Analysis of Motives for ***Not Throwing Away Something that Could Have Been Reused Motive: Ungreen Behavior Avoidance***

	Factor		
Motive Category	Prosocial	Enabling Capabilities	Image
Altruism	**.81**	.10	–.15
Social responsibility	**.81**	.10	–.22
Self-image	**.72**	.10	–.03
Health reasons	**.71**	–.16	.19
Public relations	**.70**	.00	.16
Safety reasons	**.60**	–.04	.37
Environmental benefits	**.52**	.40	–.32
Financial/cost considerations	**.31**	.22	.25
Cultural norms	**.30**	.27	.25
Lack of achievement drive	–.04	**.90**	–.01
Lack of self-efficacy	.05	**.80**	.04
Lack of knowledge	–.08	**.79**	–.07
Habit, personal preference	.08	**.73**	.09
Availability	.21	**.32**	.22
Requirement	.01	.05	**.79**
Eigenvalue (unrotated solution)	6.78	1.95	1.09
% of variance	45.23	12.97	7.28

	Factor Correlations		
Prosocial	—		
Enabling Capabilities	.59	—	
Image	.34	.03	—

Note. Values in boldface indicate the highest factor loading for each item.

Appendix F1

Study 3: Environmental Sustainability Motives Scale Item Analysis – Long Form Items: ***Green Behavior Commission***

Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
					Item-Total Correlation	Alpha	Alpha if deleted
Prosocial							
1. Why did you recycle or compost?	for environmental benefits	293	5.25	1.69	.63	.82	.80
2. Why did you make environmentally responsible product choices?	for environmental benefits	235	5.17	1.48	.75	.82	.68
3. Why did you embrace innovations for environmental sustainability?	for environmental benefits	227	4.97	1.54	.65	.82	.78
4. Why did you monitor how your behavior impacted the environment?	desired to help others	187	4.65	1.61	.77	.87	.81
5. Why did you behave in an environmentally responsible way even when it was inconvenient?	desired to help others	236	4.40	1.71	.73	.87	.85
6. Why did you make environmentally responsible product choices?	desired to help others	235	4.26	1.72	.77	.87	.81
7. Why did you use resources frugally?	to fulfill my responsibility to future generations	242	3.60	1.80	.78	.89	.86
8. Why did you change your work habits to be more environmentally sustainable?	to fulfill my responsibility to future generations	158	4.31	1.67	.81	.89	.83
9. Why did you make environmentally responsible product choices?	to fulfill my responsibility to future generations	235	4.08	1.74	.78	.89	.86
Enabling Capabilities							

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
10.	Why did you monitor how your behavior impacted the environment?	opportunity was available or convenient	187	4.73	1.50	.62	.77	.68
11.	Why did you recycle or compost?	was available or convenient	293	5.35	1.60	.59	.77	.72
12.	Why did you make environmentally responsible product choices?	available or convenient	235	4.71	1.39	.62	.77	.69
13.	Why did you recycle or compost?	didn't mind the extra effort	293	5.39	1.35	.54	.79	.80
14.	Why did you change your work habits to be more environmentally sustainable?	didn't mind the extra effort	158	5.04	1.38	.74	.79	.58
15.	Why did you find new uses for discarded or surplus items?	didn't mind the extra effort	181	5.09	1.38	.60	.79	.73
16.	Why did you change your work habits to be more environmentally sustainable?	because I thought I was capable of doing it	158	5.14	1.35	.73	.86	.82
17.	Why did you find new uses for discarded or surplus items?	because I thought I was capable of doing it	181	5.03	1.37	.77	.86	.78
18.	Why did you make environmentally responsible product choices?	because I thought I was capable of doing it	235	4.81	1.50	.73	.86	.82
19.	Why did you monitor how your behavior impacted the environment?	because I knew how to	187	4.96	1.37	.74	.86	.79
20.	Why did you change your work habits to be more environmentally sustainable?	because I knew how to	158	5.04	1.34	.73	.86	.81
21.	Why did you find new uses for	because I knew how to	181	5.09	1.43	.73	.86	.81

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	discarded or surplus items?							
22.	Why did you behave in an environmentally responsible way even when it was inconvenient?	out of habit or personal preference	236	4.97	1.58	.67	.78	.64
23.	Why did you make environmentally responsible product choices?	out of habit or personal preference	235	4.77	1.53	.58	.78	.74
24.	Why did you embrace innovations for environmental sustainability?	out of habit or personal preference	227	4.62	1.55	.60	.78	.73
Extrinsic								
25.	Why did you use resources frugally?	for health reasons	242	2.95	1.78	.66	.85	.83
26.	Why did you behave in an environmentally responsible way even when it was inconvenient?	for health reasons	236	3.42	1.91	.78	.85	.72
27.	Why did you embrace innovations for environmental sustainability?	for health reasons	227	3.56	1.72	.70	.85	.80
28.	Why did you use resources frugally?	for safety reasons	242	2.91	1.86	.67	.82	.75
29.	Why did you behave in an environmentally responsible way even when it was inconvenient?	for safety reasons	236	3.31	1.84	.70	.82	.72
30.	Why did you make environmentally responsible product choices?	for safety reasons	235	3.32	1.81	.64	.82	.78
31.	Why did you monitor how your behavior impacted the environment?	for financial considerations	187	3.25	1.73	.71	.81	.69
32.	Why did you change your work habits to be more environmentally sustainable?	for financial considerations	158	3.56	1.74	.57	.81	.83

						Reliability of Motive Category Facets		
	Motive Stem	Motive Item	*N*	Mean	*SD*	Item-Total Correlation	Alpha	Alpha if deleted
33.	Why did you behave in an environmentally responsible way even when it was inconvenient?	for financial considerations	236	3.20	1.71	.71	.81	.69
Image								
34.	Why did you find new uses for discarded or surplus items?	to contribute to or maintain my organization's eco-friendly image	181	3.35	1.74	.85	.92	.86
35.	Why did you behave in an environmentally responsible way even when it was inconvenient?	to contribute to or maintain my organization's eco-friendly image	236	3.50	1.88	.82	.92	.89
36.	Why did you embrace innovations for environmental sustainability?	to contribute to or maintain my organization's eco-friendly image	227	3.64	1.75	.82	.92	.89
37.	Why did you recycle or compost?	was valued in my department/unit or culture	293	4.00	1.88	.74	.86	.80
38.	Why did you change your work habits to be more environmentally sustainable?	was valued in my department/unit or culture	158	3.80	1.81	.78	.86	.76
39.	Why did you make environmentally responsible product choices?	was valued in my department/unit or culture	235	3.66	1.77	.69	.86	.84
40.	Why did you use resources frugally?	to contribute to or maintain my own eco-friendly image	242	3.33	1.68	.80	.90	.86

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
41.	Why did you change your work habits to be more environmentally sustainable?	to contribute to or maintain my own eco-friendly image	158	3.78	1.62	.84	.90	.82
42.	Why did you embrace innovations for environmental sustainability?	to contribute to or maintain my own eco-friendly image	227	3.62	1.63	.76	.90	.89
43.	Why did you change your work habits to be more environmentally sustainable?	was required	158	3.30	1.86	.79	.88	.80
44.	Why did you behave in an environmentally responsible way even when it was inconvenient?	was required	236	3.09	1.85	.77	.88	.82
45.	Why did you embrace innovations for environmental sustainability?	was required	227	3.60	1.79	.74	.88	.86

Appendix F2

Study 3: Environmental Sustainability Motives Scale – Long Form Items: ***Green Behavior Omission***

Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets: Item-Total Correlation	Reliability of Motive Category Facets: Alpha	Reliability of Motive Category Facets: Alpha if deleted
Prosocial							
1. Why didn't you find new uses for discarded or surplus items?	environment was not important to me	164	2.21	1.46	.85	.89	.80
2. Why didn't you encourage and support others to be environmentally responsible?	environment was not important to me	169	2.30	1.57	.78	.89	.86
3. Why didn't you generate creative ideas relating to environmental sustainability?	environment was not important to me	262	2.16	1.46	.76	.89	.88
4. Why didn't you encourage and support others to be environmentally responsible?	didn't need or want to help others	169	2.20	1.49	.72	.87	.84
5. Why didn't you generate creative ideas relating to environmental sustainability?	didn't need or want to help others	262	2.04	1.37	.76	.87	.81
6. Why weren't you involved in projects that tried to repair damage to the environment?	didn't need or want to help others	279	1.87	1.16	.79	.87	.79
7. Why didn't you develop or implement environmental initiatives?	do not feel responsible to future generations	268	2.26	1.48	.79	.88	.82
8. Why didn't you encourage and support	do not feel responsible to	169	2.33	1.51	.74	.88	.85

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	others to be environmentally responsible?	future generations						
9.	Why weren't you involved in projects that tried to repair damage to the environment?	do not feel responsible to future generations	279	2.02	1.34	.78	.88	.83
10.	Why didn't you monitor how your behavior impacted the environment?	did not care	158	3.13	1.75	.68	.83	.78
11.	Why didn't you develop or implement environmental initiatives?	did not care	268	2.81	1.79	.71	.83	.75
12.	Why didn't you encourage and support others to be environmentally responsible?	did not care	169	3.11	1.89	.69	.83	.77
13.	Why didn't you monitor how your behavior impacted the environment?	was careless	158	3.62	1.79	.72	.85	.80
14.	Why didn't you develop or implement environmental initiatives?	was thoughtless	268	3.06	1.82	.69	.85	.82
15.	Why didn't you change your work habits to be more environmentally sustainable?	was thoughtless	187	3.11	1.74	.76	.85	.76
16.	Why didn't you monitor how your behavior impacted the environment?	projecting an eco-friendly image of myself is not important	158	2.96	1.69	.67	.81	.73
17.	Why didn't you develop or implement environmental initiatives?	projecting an eco-friendly image of myself is not important	268	2.53	1.66	.59	.81	.82
18.	Why didn't you change your work	projecting an eco-friendly	187	2.72	1.61	.73	.81	.68

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	habits to be more environmentally sustainable?	image of myself is not important						
19.	Why didn't you find new uses for discarded or surplus items?	out of habit or personal preference	164	3.45	1.81	.63	.79	.71
20.	Why didn't you encourage and support others to be environmentally responsible?	out of habit or personal preference	169	3.58	1.84	.58	.79	.76
21.	Why didn't you generate creative ideas relating to environmental sustainability?	out of habit or personal preference	262	3.28	1.84	.68	.79	.66
Enabling Capabilities								
22.	Why didn't you monitor how your behavior impacted the environment?	opportunity was not available or convenient	158	4.47	1.81	.47	.59	.43
23.	Why didn't you develop or implement environmental initiatives?	opportunity was not available or convenient	268	4.94	1.82	.46	.59	.44
24.	Why didn't you find new uses for discarded or surplus items?	was not convenient	164	4.22	1.87	.31	.59	.56
25.	Why weren't you involved in projects that tried to repair damage to the environment?	projects were not available or convenient	279	5.33	1.84	.24	.59	.61
26.	Why didn't you monitor how your behavior impacted the environment?	would have been a hassle	158	4.11	1.85	.57	.72	.60
27.	Why didn't you develop or implement environmental initiatives?	would have been a hassle	268	3.94	1.87	.50	.72	.70
28.	Why didn't you encourage and support others to be environmentally	would have been a hassle	169	3.68	1.88	.57	.72	.61

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	responsible?							
29.	Why didn't you monitor how your behavior impacted the environment?	because I thought I wouldn't be capable of doing it	158	2.97	1.71	.50	.70	.63
30.	Why didn't you change your work habits to be more environmentally sustainable?	because I thought I wouldn't be capable of doing it	187	3.09	1.81	.53	.70	.59
31.	Why didn't you generate creative ideas relating to environmental sustainability?	because I thought I wouldn't be capable of doing it	262	3.44	1.89	.52	.70	.60
32.	Why didn't you monitor how your behavior impacted the environment?	didn't know how to	158	3.60	1.85	.56	.72	.60
33.	Why didn't you change your work habits to be more environmentally sustainable?	didn't know how to	187	4.16	1.92	.55	.72	.62
34.	Why didn't you encourage and support others to be environmentally responsible?	didn't know how to	169	3.64	2.01	.51	.72	.67
Extrinsic								
35.	Why didn't you develop or implement environmental initiatives?	for health reasons	268	1.89	1.34	.65	.80	.74
36.	Why didn't you change your work habits to be more environmentally sustainable?	for health reasons	187	2.20	1.55	.63	.80	.75
37.	Why didn't you find new uses for discarded or surplus items?	for health reasons	164	2.44	1.70	.69	.80	.69

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
38.	Why didn't you monitor how your behavior impacted the environment?	for safety reasons	158	2.06	1.45	.68	.79	.66
39.	Why didn't you develop or implement environmental initiatives?	for safety reasons	268	2.00	1.44	.58	.79	.77
40.	Why didn't you change your work habits to be more environmentally sustainable?	for safety reasons	187	2.39	1.72	.64	.79	.71
41.	Why didn't you monitor how your behavior impacted the environment?	for financial considerations	158	2.36	1.64	.64	.83	.82
42.	Why didn't you develop or implement environmental initiatives?	for financial considerations	268	2.46	1.66	.71	.83	.76
43.	Why didn't you change your work habits to be more environmentally sustainable?	for financial considerations	187	2.71	1.73	.75	.83	.72
Image								
44.	Why didn't you develop or implement environmental initiatives?	projecting an eco-friendly image is not important for my organization	268	2.99	1.82	.70	.85	.81
45.	Why didn't you change your work habits to be more environmentally sustainable?	projecting an eco-friendly image is not important for my organization	187	3.16	1.88	.75	.85	.76
46.	Why weren't you involved in projects that tried to repair damage to the environment?	projecting an eco-friendly image is not important for my organization	279	2.90	1.95	.71	.85	.80
47.	Why didn't you encourage and support others to be environmentally	was not valued in my department/unit or culture	169	3.28	1.90	.76	.86	.78

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	responsible?							
48.	Why didn't you generate creative ideas relating to environmental sustainability?	was not valued in my department/unit or culture	262	3.26	1.92	.73	.86	.81
49.	Why weren't you involved in projects that tried to repair damage to the environment?	was not valued in my department/unit or culture	279	3.22	1.95	.72	.86	.82
50.	Why didn't you develop or implement environmental initiatives?	I was required not to	268	2.97	2.05	.50	.71	.65
51.	Why didn't you find new uses for discarded or surplus items?	I was required not to	164	3.05	2.02	.52	.71	.63
52.	Why didn't you encourage and support others to be environmentally responsible?	I was required not to	169	2.79	1.98	.56	.71	.57

Appendix F3

Study 3: Environmental Sustainability Motives Scale – Long Form Items: ***Ungreen Behavior Commission***

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets: Item-Total Correlation	Reliability of Motive Category Facets: Alpha	Reliability of Motive Category Facets: Alpha if deleted
Prosocial								
1.	Why did you pollute?	environment was not important to me	99	2.25	1.31	.86	.80	.74
2.	Why didn't you use public transportation or ride a bike to work?	environment was not important to me	206	1.96	1.25	.86	.78	.76
3.	Why did you throw away something that could have been reused?	environment was not important to me	216	2.19	1.32	.86	.83	.71
4.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't need or want to help others	235	2.03	1.19	.83	.75	.70
5.	Why didn't you use public transportation or ride a bike to work?	didn't need or want to help others	206	1.87	1.23	.83	.78	.68
6.	Why did you throw away something that could have been reused?	didn't need or want to help others	216	2.14	1.25	.83	.76	.69
7.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	do not feel responsible to future generations	235	2.25	1.38	.87	.78	.79
8.	Why didn't you use public transportation or ride a bike to work?	do not feel responsible to future generations	206	2.08	1.35	.87	.51	.82
9.	Why did you throw away something that could have been reused?	do not feel responsible to future generations	216	2.33	1.40	.87	.89	.66

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
10.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	did not care	235	2.82	1.70	.67	.61	.45
11.	Why did you pollute?	did not care	99	2.72	1.63	.67	.61	.46
12.	Why didn't you use public transportation or ride a bike to work?	did not care	206	2.66	1.86	.67	.61	.47
13.	Why did you throw away something that could have been reused?	did not care	216	3.19	1.66	.67	.60	.47
14.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	was thoughtless	235	3.28	1.74	.61	.43	.55
15.	Why did you pollute?	was careless	99	3.48	1.78	.61	.61	.30
16.	Why didn't you use public transportation or ride a bike to work?	was thoughtless	206	2.51	1.71	.61	.59	.34
17.	Why did you throw away something that could have been reused?	was careless	216	3.73	1.64	.61	.54	.41
18.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	projecting an eco-friendly image of myself is not important	235	2.76	1.57	.72	.59	.57
19.	Why didn't you use public transportation or ride a bike to work?	projecting an eco-friendly image of myself is not important	206	2.26	1.52	.72	.55	.60
20.	Why did you throw away something that could have been reused?	projecting an eco-friendly image of myself is not important	216	2.65	1.51	.72	.72	.46
Enabling Capabilities								

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
21.	Why did you pollute?	not polluting was less convenient	99	4.32	1.60	.51	.64	.15
22.	Why didn't you use public transportation or ride a bike to work?	was not available or convenient	206	5.43	1.87	.51	.07	.49
23.	Why did you throw away something that could have been reused?	not throwing away was inconvenient	216	4.11	1.73	.51	.31	.39
24.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	would have been a hassle to change	235	4.31	1.71	.60	.43	—
25.	Why didn't you use public transportation or ride a bike to work?	would have been a hassle	206	5.50	1.75	.60	.43	—
26.	Why didn't you use public transportation or ride a bike to work?	because I thought I wouldn't be capable of doing it	206	3.11	2.19	.52	.35	—
27.	Why did you throw away something that could have been reused?	because I thought I wouldn't be capable of avoiding it	216	3.26	1.73	.52	.35	—
28.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	out of habit or personal preference	235	4.01	1.76	.60	.39	.48
29.	Why didn't you use public transportation or ride a bike to work?	out of habit or personal preference	206	4.80	1.88	.60	.48	.42
30.	Why did you throw away something that could have been reused?	out of habit or personal preference	216	4.04	1.65	.60	.59	.33
Extrinsic								
31.	Why did you stick to typical ways of	for health reasons	235	2.41	1.67	.67	.43	.60

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	doing work, even though they were environmentally unfriendly?							
32.	Why did you pollute?	for health reasons	99	2.34	1.49	.67	.64	.43
33.	Why did you throw away something that could have been reused?	for health reasons	216	2.98	1.96	.67	.65	.45
34.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	for safety reasons	235	2.63	1.77	.69	.62	.49
35.	Why did you pollute?	for safety reasons	99	2.43	1.51	.69	.53	.57
36.	Why did you throw away something that could have been reused?	for safety reasons	216	3.04	1.95	.69	.65	.48
37.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	for financial considerations	235	2.88	1.75	.62	.57	.40
38.	Why didn't you use public transportation or ride a bike to work?	for financial considerations	206	2.58	1.83	.62	.52	.43
39.	Why did you throw away something that could have been reused?	for financial considerations	216	2.34	1.49	.62	.47	.47
40.	Why did you pollute?	was required	99	3.23	1.97	.49	.44	.27
41.	Why didn't you use public transportation or ride a bike to work?	I was required not to	206	2.56	2.10	.49	.41	.29
42.	Why did you throw away something that could have been reused?	was required	216	3.56	2.06	.49	.30	.35
Image								
43.	Why did you stick to typical ways of doing work, even though they were	projecting an eco-friendly image is not important for	235	3.26	1.76	.69	.58	.53

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	environmentally unfriendly?	my organization						
44.	Why didn't you use public transportation or ride a bike to work?	projecting an eco-friendly image is not important for my organization	206	2.31	1.57	.69	.67	.46
45.	Why did you throw away something that could have been reused?	projecting an eco-friendly image is not important for my organization	216	2.94	1.74	.69	.55	.55
46.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	change was not valued in my department/unit or culture	235	3.49	1.76	.63	.43	.52
47.	Why didn't you use public transportation or ride a bike to work?	was not valued in my department/unit or culture	206	2.36	1.64	.63	.67	.33
48.	Why did you throw away something that could have been reused?	reusing was not valued in my department/unit or culture	216	3.48	1.87	.63	.46	.49
49.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't know how to change	235	3.93	1.81	.48	.37	.31
50.	Why didn't you use public transportation or ride a bike to work?	didn't know how to	206	2.48	1.81	.48	.49	.24
51.	Why did you throw away something that could have been reused?	didn't know how to reuse it	216	4.43	1.73	.48	.29	.36

Appendix F4

Study 3: Environmental Sustainability Motives Scale – Long Form Items: ***Ungreen Behavior Avoidance***

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets: Item-Total Correlation	Reliability of Motive Category Facets: Alpha	Reliability of Motive Category Facets: Alpha if deleted
Prosocial								
1.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for environmental benefits	110	4.98	1.62	.81	.87	.77
2.	Why didn't you pollute?	for environmental benefits	246	5.13	1.82	.68	.87	.90
3.	Why didn't you throw away something that could have been reused?	for environmental benefits	129	4.57	1.89	.79	.87	.79
4.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	desired to help others	110	4.05	1.87	.73	.84	.75
5.	Why didn't you pollute?	desired to help others	246	4.07	1.92	.70	.84	.78
6.	Why didn't you discourage employees who made environmental sustainability efforts?	desired to help others	301	3.92	1.88	.67	.84	.80
7.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to fulfill my responsibility to future generations	110	4.06	1.81	.73	.85	.77
8.	Why didn't you pollute?	to fulfill my responsibility to future generations	246	4.14	2.03	.67	.85	.83
9.	Why didn't you discourage employees who made environmental sustainability	to fulfill my responsibility to future generations	301	3.52	1.97	.75	.85	.75

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	efforts?							
Enabling Capabilities								
10.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	changing ways was convenient	110	3.98	1.62	.61	.76	.66
11.	Why didn't you pollute?	not polluting was convenient	246	4.41	1.77	.63	.76	.64
12.	Why didn't you throw away something that could have been reused?	not throwing away was convenient	129	4.21	1.91	.54	.76	.74
13.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	didn't mind the extra effort	110	4.83	1.60	.73	.84	.77
14.	Why did you use public transportation or ride a bike to work?	didn't mind the extra effort	139	5.04	1.56	.63	.84	.86
15.	Why didn't you throw away something that could have been reused?	didn't mind the extra effort of reusing	129	4.88	1.76	.79	.84	.71
16.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	because I thought I was capable of changing	110	4.74	1.57	.65	.77	.63
17.	Why didn't you pollute?	because I thought I was capable of avoiding it	246	5.04	1.81	.57	.77	.72
18.	Why did you use public transportation or ride a bike to work?	because I thought I was capable of doing it	139	5.36	1.61	.59	.77	.70
19.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	because I knew how to change	110	4.65	1.55	.65	.75	.58

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
20.	Why didn't you pollute?	because I knew how not to	246	5.02	1.74	.55	.75	.72
21.	Why didn't you throw away something that could have been reused?	because I knew how to reuse it	129	5.05	1.69	.55	.75	.70
22.	Why didn't you pollute?	out of habit or personal preference	246	5.26	1.64	.68	.75	.59
23.	Why did you use public transportation or ride a bike to work?	out of habit or personal preference	139	5.27	1.70	.64	.75	.61
24.	Why didn't you throw away something that could have been reused?	out of habit or personal preference	129	4.82	1.82	.47	.75	.83
Extrinsic								
25.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for health reasons	110	3.27	1.73	.59	.75	.65
26.	Why didn't you pollute?	for health reasons	246	4.03	2.05	.57	.75	.68
27.	Why didn't you discourage employees who made environmental sustainability efforts?	for health reasons	301	2.69	1.81	.58	.75	.67
28.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	for safety reasons	110	2.93	1.64	.54	.79	.80
29.	Why did you use public transportation or ride a bike to work?	for safety reasons	139	3.12	1.99	.60	.79	.74
30.	Why didn't you throw away something that could have been reused?	for safety reasons	129	2.80	1.84	.75	.79	.57
31.	Why didn't you stick to typical ways of doing work, even though they were	for financial considerations	110	3.23	1.80	.70	.80	.66

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	environmentally unfriendly?							
32.	Why didn't you discourage employees who made environmental sustainability efforts?	for financial considerations	301	2.42	1.61	.62	.80	.75
33.	Why didn't you throw away something that could have been reused?	for financial considerations	129	3.79	2.00	.61	.80	.75
Image								
34.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to contribute to or maintain my organization's eco-friendly image	110	3.48	1.95	.86	.92	.87
35.	Why didn't you pollute?	to contribute to or maintain my organization's eco-friendly image	246	3.41	1.98	.81	.92	.92
36.	Why didn't you throw away something that could have been reused?	to contribute to or maintain my organization's eco-friendly image	129	3.14	1.81	.86	.92	.87
37.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	the change was valued in my department/unit or culture	110	3.56	1.85	.81	.88	.79
38.	Why didn't you pollute?	not polluting was valued in my department/unit or culture	246	3.95	1.96	.74	.88	.86
39.	Why did you use public transportation	was valued in my	139	2.63	1.77	.75	.88	.84

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Motive Category Facets		
						Item-Total Correlation	Alpha	Alpha if deleted
	or ride a bike to work?	department/unit or culture						
40.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	to contribute to or maintain my own eco-friendly image	110	3.55	1.79	.91	.94	.88
41.	Why didn't you pollute?	to contribute to or maintain my own eco-friendly image	246	3.57	1.90	.84	.94	.93
42.	Why didn't you throw away something that could have been reused?	to contribute to or maintain my own eco-friendly image	129	3.37	1.82	.85	.94	.92
43.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly?	I was required to change	110	2.68	1.69	.58	.69	.49
44.	Why didn't you pollute?	I was required not to	246	3.17	1.99	.54	.69	.54
45.	Why didn't you throw away something that could have been reused?	I was required not to	129	2.73	1.84	.40	.69	.72

Appendix G

Study 3: Environmental Sustainability Motives Scale – Short Form Items

Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster: Item-Total Correlation	Alpha	Alpha if deleted
Green Behavior Performance							
1. Why did you behave in an environmentally responsible way even when it was inconvenient?	for environmental benefits	236	5.07	1.56	.68	.81	.72
2. Why did you encourage and support others to be environmentally responsible?	desired to help others	176	4.89	1.41	.67	.81	.73
3. Why did you make environmentally responsible product choices?	to fulfill my responsibility to future generations	235	4.08	1.74	.65	.81	.77
4. Why did you recycle or compost?	was available or convenient	293	5.35	1.60	.68	.84	.80
5. Why did you change your work habits to be more environmentally sustainable?	didn't mind the extra effort	158	5.04	1.38	.54	.84	.83
6. Why did you use resources frugally?	because I thought I was capable of doing it	242	4.74	1.62	.71	.84	.79
7. Why did you encourage and support others to be environmentally responsible?	because I knew how to	176	4.95	1.42	.72	.84	.79
8. Why did you dispose of waste properly?	out of habit or personal preference	317	5.30	1.47	.58	.84	.82
9. Why did you behave in an	for health reasons	236	3.42	1.91	.68	.80	.68

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster: Item-Total Correlation	Alpha	Alpha if deleted
	environmentally responsible way even when it was inconvenient?							
10.	Why did you monitor how your behavior impacted the environment?	for safety reasons	187	3.63	1.73	.69	.80	.68
11.	Why did you recycle or compost?	for financial considerations	293	2.98	1.87	.56	.80	.81
12.	Why did you find new uses for discarded or surplus items?	to contribute to or maintain my organization's eco-friendly image	181	3.35	1.74	.77	.84	.75
13.	Why did you embrace innovations for environmental sustainability?	was valued in my department/unit or culture	227	3.86	1.64	.71	.84	.78
14.	Why did you make environmentally responsible product choices?	was required	235	3.11	1.75	.60	.84	.83
15.	Why did you monitor how your behavior impacted the environment?	to contribute to or maintain my own eco-friendly image	187	4.03	1.66	.61	.84	.82
Green Behavior Omission								
1.	Why didn't you generate creative ideas relating to environmental sustainability?	environment was not important to me	262	2.16	1.46	.87	.89	.85
2.	Why didn't you find new uses for discarded or surplus items?	didn't need or want to help others	164	2.05	1.26	.76	.89	.87
3.	Why didn't you develop or implement environmental initiatives?	do not feel responsible to future generations	268	2.26	1.48	.57	.89	.89
4.	Why didn't you encourage and support others to be environmentally responsible?	did not care	169	3.11	1.89	.73	.89	.87
5.	Why didn't you monitor how your	was careless	158	3.62	1.79	.59	.89	.89

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster		
						Item-Total Correlation	Alpha	Alpha if deleted
	behavior impacted the environment?							
6.	Why didn't you generate creative ideas relating to environmental sustainability?	projecting an eco-friendly image of myself is not important	262	2.60	1.67	.71	.89	.87
7.	Why weren't you involved in projects that tried to repair damage to the environment?	out of habit or personal preference	279	3.18	1.90	.59	.89	.88
8.	Why weren't you involved in projects that tried to repair damage to the environment?	projects were not available or convenient	279	5.33	1.84	.42	.67	.63
9.	Why didn't you monitor how your behavior impacted the environment?	would have been a hassle	158	4.11	1.85	.34	.67	.67
10.	Why didn't you change your work habits to be more environmentally sustainable?	didn't know how to	187	4.16	1.92	.55	.67	.54
11.	Why didn't you encourage and support others to be environmentally responsible?	because I thought I wouldn't be capable of doing it	169	2.96	1.84	.51	.67	.57
12.	Why didn't you find new uses for discarded or surplus items?	for health reasons	164	2.44	1.70	.51	.72	.70
13.	Why didn't you change your work habits to be more environmentally sustainable?	for safety reasons	187	2.39	1.72	.64	.72	.54
14.	Why didn't you encourage and support others to be environmentally responsible?	for financial considerations	169	2.22	1.63	.51	.72	.67

Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster: Item-Total Correlation	Alpha	Alpha if deleted
15. Why didn't you find new uses for discarded or surplus items?	projecting an eco-friendly image is not important for my organization	164	2.84	1.68	.64	.68	.42
16. Why didn't you develop or implement environmental initiatives?	was not valued in my department/unit or culture	268	3.25	1.93	.53	.68	.55
17. Why weren't you involved in projects that tried to repair damage to the environment?	I was required not to be involved	279	2.58	2.02	.36	.68	.79
Ungreen Behavior Commission							
1. Why did you throw away something that could have been reused?	environment was not important to me	216	2.19	1.32	.74	.80	.72
2. Why did you stick to typical ways of doing work, even though they were environmentally unfriendly.	didn't need or want to help others	235	2.03	1.19	.64	.80	.75
3. Why did you throw away something that could have been reused?	do not feel responsible to future generations	216	2.33	1.40	.69	.80	.74
4. Why did you stick to typical ways of doing work, even though they were environmentally unfriendly.	did not care	235	2.82	1.70	.46	.80	.79
5. Why didn't you use public transportation or ride a bike to work?	was thoughtless	206	2.51	1.71	.31	.80	.84
6. Why did you throw away something that could have been reused?	projecting an eco-friendly image of myself is not important	216	2.65	1.51	.63	.80	.75
7. Why didn't you use public transportation or ride a bike to work?	was not available or convenient	206	5.43	1.87	.52	.60	.40

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster: Item-Total Correlation	Alpha	Alpha if deleted
8.	Why didn't you use public transportation or ride a bike to work?	would have been a hassle	206	5.50	1.75	.58	.60	.39
9.	Why did you pollute?	because I thought I wouldn't be capable of not doing it	99	3.26	1.82	.25	.60	.62
10.	Why didn't you use public transportation or ride a bike to work?	out of habit or personal preference	206	4.80	1.88	.23	.60	.64
11.	Why did you throw away something that could have been reused?	for health reasons	216	2.98	1.96	.53	.56	.32
12.	Why did you throw away something that could have been reused?	for safety reasons	216	3.04	1.95	.46	.56	.38
13.	Why did you throw away something that could have been reused?	for financial considerations	216	2.34	1.49	.34	.56	.50
14.	Why did you throw away something that could have been reused?	projecting an eco-friendly image is not important for my organization	216	2.94	1.74	.50	.57	.28
15.	Why did you pollute?	not polluting was not valued in my department/unit or culture	99	3.00	1.64	.52	.57	.25
16.	Why did you stick to typical ways of doing work, even though they were environmentally unfriendly.	didn't know how to change	235	3.93	1.81	.17	.57	.77
17.	Why didn't you use public transportation or ride a bike to work?	I was required not to	206	2.56	2.10	.12	.56	.69
Ungreen Behavior Avoidance								
1.	Why didn't you throw away something that could have been reused?	for environmental benefits	129	4.57	1.89	.57	.77	.73

	Motive Stem	Motive Item	*N*	Mean	*SD*	Reliability of Homogeneous Item Cluster		
						Item-Total Correlation	Alpha	Alpha if deleted
2.	Why didn't you pollute?	desired to help others	246	4.07	1.92	.64	.77	.66
3.	Why didn't you discourage employees who made environmental sustainability efforts?	to fulfill my responsibility to future generations	301	3.52	1.97	.61	.77	.69
4.	Why didn't you pollute?	not polluting was convenient	246	4.41	1.77	.63	.89	.89
5.	Why didn't you throw away something that could have been reused?	didn't mind the extra effort of reusing	129	4.88	1.76	.70	.89	.88
6.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly.	because I thought I was capable of changing	110	4.74	1.57	.79	.89	.85
7.	Why didn't you stick to typical ways of doing work, even though they were environmentally unfriendly.	because I knew how to change	110	4.65	1.55	.82	.89	.84
8.	Why didn't you pollute?	out of habit or personal preference	246	5.26	1.64	.74	.89	.86
9.	Why didn't you discourage employees who made environmental sustainability efforts?	for financial considerations	301	2.42	1.61	.62	.78	.71
10.	Why didn't you pollute?	for health reasons	246	4.03	2.05	.59	.78	.75
11.	Why didn't you throw away something that could have been reused?	for safety reasons	129	2.80	1.84	.66	.78	.66
12.	Why didn't you throw away something that could have been reused?	to contribute to or maintain my organization's eco-friendly image	129	3.14	1.81	.68	.77	.66
13.	Why didn't you pollute?	not polluting was valued in my department/unit or	246	3.95	1.96	.72	.77	.63

						Reliability of Homogeneous Item Cluster		
	Motive Stem	Motive Item	*N*	Mean	*SD*	Item-Total Correlation	Alpha	Alpha if deleted
		culture						
14.	Why didn't you pollute?	I was required not to	246	3.17	1.99	.42	.77	.80
15.	Why did you use public transportation or ride a bike to work?	to contribute to or maintain my own eco-friendly image	139	3.07	1.81	.50	.77	.76

Appendix H1

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Categories by Behavioral Quadrant: Motive Category Facets from ESMS-LF

Green Behavior Performance

	Environmental benefit		Altruism		Social responsibility		Availability		Lack of achievement drive		Lack of self-efficacy		Lack of knowledge		Habit/personal preference	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	-.02	-.02	.01	.01	.02	.02	.09	.11	.06	.07	.14	.16	.12	.14	.04	.04
Extraversion	-.03	-.04	.04	.05	-.06	-.06	.07	.08	.00	.00	.08	.09	.01	.01	.05	.06
Openness	.31	.36	.17	.19	.13	.15	.02	.03	.29	.35	.17	.20	.24	.28	.27	.33
Agreeableness	.32	.37	.26	.30	.19	.22	.00	.00	.22	.26	.15	.16	.24	.27	.26	.31
Conscientiousness	.07	.08	.11	.13	.10	.11	.13	.15	.10	.11	.05	.06	.12	.13	.11	.13

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	Health reasons		Safety reasons		Financial cost considerations		Public relations		Cultural norms		Self-image		Requirement	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.01	.02	.04	.05	.03	.04	.02	.02	.01	.01	-.05	-.06	.00	.00
Extraversion	.04	.04	.04	.04	.08	.09	.14	.15	.08	.09	.03	.03	.14	.16
Openness	-.02	-.02	-.04	-.05	-.07	-.08	-.04	-.05	.03	.04	.08	.09	-.15	-.17
Agreeableness	.00	.00	.00	.00	-.08	-.10	-.04	-.05	.08	.09	.05	.06	-.19	-.21
Conscientiousness	-.01	-.02	.01	.01	.04	.04	-.02	-.03	.02	.03	-.05	-.06	.03	.04

Note. N = 263 to 330. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Appendix H2

Green Behavior Omission

	Environmental benefit		Altruism		Social responsibility		Apathy		Carelessness		Self-image		Availability		Lack of achievement drive	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.00	.00	-.03	-.03	-.01	-.02	.00	.00	.01	.01	-.03	-.03	.09	.11	.07	.10
Extraversion	.02	.02	.00	.00	-.01	-.01	.12	.13	.09	.10	.01	.01	.09	.11	.12	.16
Openness	-.31	-.35	-.22	-.25	-.24	-.27	-.24	-.28	-.22	-.25	-.31	-.37	**.24**	.29	**-.12**	-.16
Agreeableness	-.39	-.43	-.34	-.38	-.31	-.34	-.39	-.45	-.18	-.21	-.34	-.40	**.13**	.16	**-.14**	-.19
Conscientiousness	-.07	-.08	-.14	-.15	-.06	-.07	-.03	-.03	-.07	-.08	.02	.02	.02	.02	-.05	-.06

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	Lack of self-efficacy		Lack of knowledge		Habit personal preference		Health reasons		Safety reasons		Financial cost consid.		Public relations		Cultural norms		Requirement	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.15	.19	.06	.08	.02	.02	-.06	-.07	-.03	-.03	.02	.03	.00	.00	-.01	-.01	.01	.02
Extraversion	-.02	-.03	.15	.19	.15	.18	.01	.01	.00	.00	.05	.06	-.04	-.04	.01	.01	-.04	-.05
Openness	**.00**	.00	**.09**	.11	**-.15**	-.19	-.10	-.12	-.10	-.12	-.13	-.16	-.09	-.10	-.02	-.02	-.03	-.04
Agreeableness	**.04**	.05	**.06**	.08	**-.04**	-.05	-.08	-.10	-.11	-.13	-.11	-.13	-.13	-.14	-.09	-.11	-.06	-.07
Conscientiousness	-.09	-.10	-.01	-.02	-.11	-.14	-.07	-.08	-.02	-.02	.02	.02	.02	.02	.02	.03	.01	.01

Note. N = 255 to 310. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Appendix H3

Ungreen Behavior Commission

	Environmental benefit		Altruism		Social responsibility		Apathy		Carelessness		Self-image		Availability		Lack of achievement drive	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.06	.07	.02	.02	.03	.03	.02	.03	.02	.03	-.01	-.01	.07	.10	.05	.07
Extraversion	.00	.00	-.03	-.03	-.01	-.01	.05	.07	.09	.12	.00	.00	.00	.01	.14	.19
Openness	-.31	-.36	-.23	-.26	-.23	-.27	-.25	-.33	-.16	-.22	-.22	-.28	.10	.15	-.01	-.01
Agreeableness	-.41	-.46	-.35	-.41	-.30	-.33	-.34	-.44	-.14	-.19	-.29	-.36	.03	.04	-.04	-.06
Conscientiousness	-.09	-.11	-.14	-.16	-.09	-.10	-.06	-.07	-.06	-.08	-.01	-.01	.17	.25	.14	.19

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	Lack of self-efficacy		Habit personal preference		Health reasons		Safety reasons		Financial/ cost consid.		Requirement		Public relations		Cultural norms		Lack of knowledge	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	-.01	-.01	.11	.15	-.06	-.07	-.07	-.09	-.05	-.06	-.04	-.05	-.01	-.01	-.02	-.03	.11	.17
Extraversion	.10	.14	.13	.17	.11	.14	.09	.11	.06	.08	.06	.09	.03	.04	.04	.06	.06	.09
Openness	.03	.04	-.13	-.18	-.05	-.06	-.06	-.08	-.13	-.17	.00	.00	-.10	-.12	-.08	-.10	.09	.14
Agreeableness	.09	.12	-.14	-.19	.05	.06	.01	.02	-.13	-.17	.01	.01	-.10	-.13	-.07	-.10	.07	.10
Conscientiousness	.02	.03	.00	.01	.02	.03	.05	.06	.03	.04	-.03	-.04	-.02	-.02	-.05	-.06	-.04	-.06

Note. N = 290 to 317. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Appendix H4

Ungreen Behavior Avoidance

	Environmental benefit		Altruism		Social responsibility		Availability		Lack of achievement drive		Lack of self-efficacy		Lack of knowledge		Habit/personal preference	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.01	.01	.00	.00	.02	.02	-.02	-.02	.00	.00	.13	.15	.08	.10	.04	.05
Extraversion	.00	.00	.01	.01	-.05	-.05	.01	.01	.03	.03	-.04	-.05	.10	.12	.08	.10
Openness	.18	.21	.13	.16	.15	.17	.04	.05	.24	.27	.19	.24	.23	.28	.23	.28
Agreeableness	.21	.24	.27	.31	.17	.19	-.08	-.10	.10	.12	.11	.13	.08	.10	.12	.15
Conscientiousness	.11	.12	.07	.08	.09	.10	.00	.00	.15	.17	.02	.03	.11	.14	.12	.14

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	Health reasons		Safety reasons		Financial cost considerations		Public relations		Cultural norms		Self-image		Requirement	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism	.03	.03	.05	.06	.05	.05	-.06	-.07	-.01	-.01	-.06	-.07	.00	-.01
Extraversion	.02	.02	.08	.10	.06	.07	.08	.09	.01	.01	.06	.06	.08	.10
Openness	.07	.08	.04	.05	.02	.03	-.02	-.02	.09	.10	.07	.07	-.07	-.09
Agreeableness	.08	.10	.03	.03	.02	.02	.02	.02	.07	.08	.12	.13	-.02	-.03
Conscientiousness	.00	.00	-.14	-.16	.04	.05	-.02	-.02	.01	.01	.00	.00	-.04	-.05

Note. *N* = 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Appendix I1

Study 3: Means and Standard Deviations for Motive Categories by Employee Green Behavior

Green Behavior Performance

Item	Environmental benefit	Altruism	Social responsibility	Availability	Achievement Drive	Self-Efficacy
Monitor environmental impact	5.39 (1.41)	4.65 (1.61)	4.56 (1.69)	4.73 (1.50)	5.07 (1.33)	5.12 (1.27)
Recycle or compost	5.25 (1.69)	4.28 (1.85)	4.15 (1.79)	5.35 (1.60)	5.39 (1.35)	5.41 (1.46)
Develop or implement environmental initiatives	5.30 (1.47)	4.79 (1.34)	4.60 (1.45)	4.81 (1.41)	4.77 (1.39)	4.90 (1.40)
Use resources frugally	4.48 (1.86)	3.85 (1.80)	3.60 (1.80)	4.29 (1.55)	4.78 (1.49)	4.74 (1.62)
Change work habits to be more environmentally sustainable	5.26 (1.38)	4.53 (1.66)	4.31 (1.67)	4.44 (1.60)	5.04 (1.38)	5.14 (1.35)
Find new uses for discarded or surplus items	4.65 (1.76)	4.17 (1.69)	3.95 (1.75)	4.62 (1.51)	5.09 (1.38)	5.03 (1.37)
Dispose of waste properly	5.09 (1.75)	4.16 (1.80)	4.03 (1.85)	5.30 (1.45)	5.13 (1.52)	5.25 (1.49)
Behave in an environmentally responsible way even when inconvenient	5.07 (1.56)	4.40 (1.71)	4.07 (1.76)	5.03 (1.45)	5.00 (1.41)	4.97 (1.42)
Make environmentally responsible product choices	5.17 (1.48)	4.26 (1.72)	4.08 (1.74)	4.71 (1.39)	4.79 (1.44)	4.81 (1.50)
Encourage and support others to be environmentally responsible	5.26 (1.44)	4.89 (1.41)	4.32 (1.70)	4.18 (1.44)	4.92 (1.37)	4.95 (1.38)
Generate creative ideas relating to environmental sustainability	4.99 (1.32)	4.64 (1.44)	4.19 (1.59)	4.13 (1.41)	4.71 (1.52)	4.73 (1.40)
Involved in projects that tried to repair damage to the environment	5.00 (1.35)	4.58 (1.58)	4.41 (1.54)	4.27 (1.60)	4.68 (1.43)	4.74 (1.55)
Embrace innovations for environmental sustainability	4.97 (1.54)	4.37 (1.58)	4.17 (1.64)	4.81 (1.35)	4.80 (1.36)	4.96 (1.43)

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Item	Lack of knowledge	Habit, personal preference	Health reasons	Safety reasons	Financial/cost considerations	Public relations	Cultural norms
Monitor environmental impact	4.96 (1.37)	4.95 (1.48)	3.64 (1.79)	3.63 (1.73)	3.25 (1.73)	3.43 (1.71)	3.58 (1.74)
Recycle or compost	5.57 (1.42)	5.43 (1.49)	3.29 (1.91)	3.10 (1.88)	2.98 (1.87)	3.51 (1.92)	4.00 (1.88)
Develop or implement environmental initiatives	4.65 (1.43)	5.01 (1.32)	4.12 (1.68)	4.01 (1.53)	3.86 (1.57)	4.10 (1.53)	4.17 (1.50)
Use resources frugally	4.93 (1.44)	4.94 (1.54)	2.95 (1.78)	2.91 (1.86)	4.50 (1.87)	3.11 (1.74)	3.70 (1.80)
Change work habits to be more environmentally sustainable	5.04 (1.34)	4.90 (1.47)	3.72 (1.82)	3.46 (1.78)	3.56 (1.74)	3.58 (1.87)	3.80 (1.81)
Find new uses for discarded or surplus items	5.09 (1.43)	4.94 (1.44)	2.96 (1.83)	3.06 (1.74)	4.14 (1.76)	3.35 (1.74)	3.55 (1.84)
Dispose of waste properly	5.53 (1.34)	5.30 (1.47)	4.07 (2.06)	4.29 (2.05)	3.00 (1.81)	3.47 (1.87)	4.15 (1.92)
Behave in an environmentally responsible way even when inconvenient	5.15(1.34)	4.97 (1.58)	3.42 (1.91)	3.31 (1.84)	3.20 (1.71)	3.50 (1.88)	3.75 (1.86)
Make environmentally responsible product choices	4.83 (1.45)	4.77 (1.53)	3.64 (1.81)	3.32 (1.81)	3.20 (1.62)	3.43 (1.82)	3.66 (1.77)
Encourage and support others to be environmentally responsible	4.95 (1.42)	4.89 (1.51)	3.49 (1.85)	3.32 (1.77)	3.11 (1.67)	3.70 (1.81)	3.84 (1.80)
Generate creative ideas relating to environmental sustainability	4.77 (1.32)	4.80 (1.25)	3.84 (1.63)	3.83 (1.67)	3.92 (1.65)	3.87 (1.67)	3.90 (1.52)
Involved in projects that tried to repair damage to the environment	4.56 (1.60)	4.59 (1.46)	3.79 (1.69)	3.62 (1.66)	3.35 (1.73)	3.89 (1.67)	4.33 (1.62)
Embrace innovations for environmental sustainability	4.84 (1.29)	4.62 (1.55)	3.56 (1.72)	3.32 (1.78)	3.42 (1.72)	3.64 (1.75)	3.86 (1.64)

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Item	Cultural norms	Self-image	Requirement
Monitor environmental impact	3.58 (1.74)	4.03 (1.66)	2.86 (1.74)
Recycle or compost	4.00 (1.88)	3.58 (1.83)	3.29 (2.00)
Develop or implement environmental initiatives	4.17 (1.50)	4.51 (1.23)	3.52 (1.64)
Use resources frugally	3.70 (1.80)	3.33 (1.68)	3.24 (1.91)
Change work habits to be more environmentally sustainable	3.80 (1.81)	3.78 (1.62)	3.30 (1.86)
Find new uses for discarded or surplus items	3.55 (1.84)	3.55 (1.73)	3.12 (1.70)
Dispose of waste properly	4.15 (1.92)	3.58 (1.81)	4.28 (2.09)
Behave in an environmentally responsible way even when inconvenient	3.75 (1.86)	3.70 (1.75)	3.09 (1.85)
Make environmentally responsible product choices	3.66 (1.77)	3.68 (1.73)	3.11 (1.75)
Encourage and support others to be environmentally responsible	3.84 (1.80)	3.85 (1.68)	2.63 (1.70)
Generate creative ideas relating to environmental sustainability	3.90 (1.52)	3.95 (1.50)	3.57 (1.64)
Involved in projects that tried to repair damage to the environment	4.33 (1.62)	4.27 (1.54)	3.73 (1.80)
Embrace innovations for environmental sustainability	3.86 (1.64)	3.62 (1.63)	3.60 (1.79)

Note. n = 66 to 317.

Appendix I2

Study 3: Means and Standard Deviations for Motive Categories by Employee Green Behavior

Green Behavior Omission

Item	Environmental benefit	Altruism	Social responsibility	Apathy	Carelessness	Self-image
Monitor environmental impact	2.44 (1.57)	2.16 (1.36)	2.42 (1.52)	3.13 (1.75)	3.62 (1.79)	2.96 (1.69)
Recycle or compost	2.29 (1.64)	2.23 (1.69)	1.94 (1.41)	2.62 (1.92)	2.71 (1.97)	2.75 (1.87)
Develop or implement environmental initiatives	2.14 (1.44)	1.94 (1.27)	2.26 (1.48)	2.81 (1.79)	3.06 (1.82)	2.53 (1.66)
Use resources frugally	2.42 (1.47)	2.43 (1.51)	2.56 (1.56)	3.44 (1.93)	3.56 (1.78)	2.80 (1.66)
Change work habits to be more environmentally sustainable	2.29 (1.44)	2.04 (1.23)	2.30 (1.47)	2.90 (1.84)	3.11 (1.74)	2.72 (1.61)
Find new uses for discarded or surplus items	2.21 (1.46)	2.05 (1.26)	2.27 (1.38)	2.98 (1.80)	3.37 (1.88)	2.60 (1.55)
Dispose of waste properly	2.82 (1.93)	2.39 (1.73)	2.68 (1.89)	3.18 (2.00)	3.39 (2.01)	3.04 (1.88)
Behave in an environmentally responsible way even when inconvenient	2.48 (1.64)	2.17 (1.32)	2.23 (1.46)	3.02 (1.87)	3.41 (1.76)	2.90 (1.75)
Make environmentally responsible product choices	2.20 (1.62)	1.99 (1.26)	2.29 (1.65)	2.86 (1.97)	2.98 (1.82)	2.56 (1.80)
Encourage and support others to be environmentally responsible	2.30 (1.57)	2.20 (1.49)	2.33 (1.51)	3.11 (1.89)	3.27 (1.84)	2.64 (1.72)
Generate creative ideas relating to environmental sustainability	2.16 (1.46)	2.04 (1.37)	2.26 (1.43)	2.82 (1.82)	3.18 (1.86)	2.60 (1.67)
Involved in projects that tried to repair damage to the environment	2.09 (1.38)	1.87 (1.16)	2.02 (1.34)	2.60 (1.82)	2.76 (1.77)	2.36 (1.56)
Embrace innovations for environmental sustainability	2.19 (1.54)	2.10 (1.45)	2.20 (1.58)	2.59 (1.81)	2.85 (1.85)	2.47 (1.71)

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Item	Habit, personal preference	Availability	Achievement drive	Self-efficacy	Lack of knowledge	Health reasons
Monitor environmental impact	4.02 (1.67)	4.47 (1.81)	4.11 (1.85)	3.60 (1.85)	2.97 (1.71)	1.98 (1.36)
Recycle or compost	2.90 (1.88)	4.90 (2.30)	3.62 (2.17)	3.21 (1.92)	3.08 (1.96)	2.02 (1.41)
Develop or implement environmental initiatives	3.35 (1.83)	4.94 (1.82)	3.94 (1.87)	4.16 (1.95)	3.53 (1.90)	1.89 (1.34)
Use resources frugally	3.77 (1.80)	4.16 (1.70)	4.07 (1.74)	3.57 (1.74)	2.80 (1.68)	2.54 (1.71)
Change work habits to be more environmentally sustainable	3.70 (1.88)	3.99 (1.93)	4.02 (1.85)	4.16 (1.92)	3.09 (1.81)	2.20 (1.55)
Find new uses for discarded or surplus items	3.45 (1.81)	4.22 (1.87)	4.17 (1.89)	4.45 (1.85)	3.35 (1.85)	2.44 (1.70)
Dispose of waste properly	3.54 (1.99)	4.11 (2.01)	3.96 (1.91)	3.54 (2.03)	3.11 (2.10)	2.29 (1.30)
Behave in an environmentally responsible way even when inconvenient	3.81 (1.81)	4.28 (1.91)	4.33 (1.76)	3.83 (1.84)	3.10 (1.68)	2.15 (1.55)
Make environmentally responsible product choices	3.17 (1.92)	4.47 (1.90)	3.88 (1.94)	3.54 (1.96)	2.86 (1.76)	2.01 (1.55)
Encourage and support others to be environmentally responsible	3.58 (1.84)	3.86 (1.88)	3.68 (1.88)	3.64 (2.01)	2.96 (1.84)	1.94 (1.47)
Generate creative ideas relating to environmental sustainability	3.28 (1.84)	4.00 (1.87)	3.90 (1.82)	4.47 (1.91)	3.44 (1.89)	1.87 (1.23)
Involved in projects that tried to repair damage to the environment	3.18 (1.90)	5.33 (1.84)	3.44 (1.94)	4.47 (1.93)	2.79 (1.76)	1.81 (1.30)
Embrace innovations for environmental sustainability	3.14 (1.92)	4.88 (2.09)	3.70 (2.03)	3.60 (1.92)	2.80 (1.80)	1.92 (1.42)

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Item	Safety reasons	Financial/cost considerations	Public relations	Cultural norms	Requirement
Monitor environmental impact	2.06 (1.45)	2.36 (1.64)	3.26 (1.81)	3.33 (1.91)	2.85 (2.03)
Recycle or compost	2.37 (1.75)	2.67 (2.02)	3.60 (2.10)	3.81 (2.28)	2.94 (2.08)
Develop or implement environmental initiatives	2.00 (1.44)	2.46 (1.66)	2.99 (1.82)	3.25 (1.93)	2.97 (2.05)
Use resources frugally	2.49 (1.69)	2.54 (1.53)	3.01 (1.82)	3.25 (1.93)	3.10 (1.96)
Change work habits to be more environmentally sustainable	2.39 (1.72)	2.71 (1.73)	3.16 (1.88)	3.45 (1.90)	3.45 (2.06)
Find new uses for discarded or surplus items	2.49 (1.72)	2.30 (1.57)	2.84 (1.68)	3.30 (1.94)	3.05 (2.02)
Dispose of waste properly	2.21 (1.26)	1.86 (1.11)	2.89 (1.77)	3.64 (1.93)	2.79 (1.81)
Behave in an environmentally responsible way even when inconvenient	2.34 (1.60)	2.48 (1.63)	3.22 (1.82)	3.39 (1.91)	3.02 (1.92)
Make environmentally responsible product choices	2.02 (1.61)	2.60 (1.86)	3.10 (1.97)	3.35 (1.96)	3.05 (2.07)
Encourage and support others to be environmentally responsible	1.93 (1.35)	2.22 (1.63)	3.17 (1.85)	3.28 (1.90)	2.79 (1.98)
Generate creative ideas relating to environmental sustainability	1.99 (1.42)	2.48 (1.69)	3.26 (1.91)	3.26 (1.92)	3.11 (2.13)
Involved in projects that tried to repair damage to the environment	1.87 (1.34)	2.24 (1.60)	2.90 (1.95)	3.22 (1.95)	2.58 (2.02)
Embrace innovations for environmental sustainability	1.99 (1.44)	2.38 (1.67)	2.91 (1.90)	3.38 (2.02)	3.29 (2.12)

Note. n = 28 to 279.

Appendix I3

Study 3: Means and Standard Deviations for Motive Categories by Employee Green Behavior

Ungreen Behavior Commission

Item	Environmental benefit	Altruism	Social responsibility	Apathy	Carelessness	Self-image
Stick to typical ways of doing work, even though they were environmentally unfriendly	2.19 (1.41)	2.03 (1.19)	2.25 (1.38)	2.82 (1.70)	3.28 (1.74)	2.76 (1.57)
Pollute	2.25 (1.31)	1.94 (1.12)	2.30 (1.38)	2.72 (1.63)	3.48 (1.78)	2.47 (1.53)
Discourage employees who made environmental sustainability efforts	2.52 (1.27)	2.57 (1.21)	2.75 (1.56)	2.61 (1.20)	3.09 (1.25)	2.59 (1.32)
Not use public transportation or ride a bike to work	1.96 (1.25)	1.87 (1.23)	2.08 (1.35)	2.66 (1.86)	2.51 (1.71)	2.26 (1.52)
Throw away something that could have been reused	2.19 (1.32)	2.14 (1.25)	2.33 (1.40)	3.19 (1.66)	3.73 (1.64)	2.65 (1.51)

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Item	Availability	Achievement drive	Self-efficacy	Habit/personal preference	Health reasons	Safety reasons
Stick to typical ways of doing work, even though they were environmentally unfriendly	4.43 (1.80)	4.31 (1.71)	3.18 (1.73)	4.01 (1.76)	2.41 (1.67)	2.63 (1.77)
Pollute	4.32 (1.60)	4.08 (1.66)	3.26 (1.82)	3.61 (1.83)	2.34 (1.49)	2.43 (1.51)
Discourage employees who made environmental sustainability efforts	2.93 (1.37)	2.86 (1.36)	2.93 (1.40)	3.30 (1.47)	3.30 (1.68)	3.30 (1.61)
Not use public transportation or ride a bike to work	5.43 (1.87)	5.50 (1.75)	3.11 (2.19)	4.80 (1.88)	2.23 (1.61)	3.24 (2.11)
Throw away something that could have been reused	4.11 (1.73)	4.16 (1.67)	3.26 (1.73)	4.04 (1.65)	2.98 (1.96)	3.04 (1.95)

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Item	Financial/cost considerations	Requirement	Public relations	Cultural norms	Lack of knowledge
Stick to typical ways of doing work, even though they were environmentally unfriendly	2.88 (1.75)	3.63 (2.01)	3.26 (1.76)	3.49 (1.76)	3.93 (1.81)
Pollute	2.86 (1.67)	3.23 (1.97)	3.09 (1.65)	3.00 (1.64)	4.62 (1.56)
Discourage employees who made environmental sustainability efforts	3.02 (1.47)	2.77 (1.46)	2.82 (1.35)	2.59 (1.13)	3.07 (1.30)
Not use public transportation or ride a bike to work	2.58 (1.83)	2.56 (2.10)	2.31 (1.57)	2.36 (1.64)	2.48 (1.81)
Throw away something that could have been reused	2.34 (1.49)	3.56 (2.06)	2.94 (1.74)	3.48 (1.87)	4.43 (1.73)

Note. n = 44 to 245.

Appendix I4

Study 3: Means and Standard Deviations for Motive Categories by Employee Green Behavior

Ungreen Behavior Avoidance

Item	Environmental benefits	Altruism	Social responsibility	Availability	Achievement drive	Self-efficacy
Stick to typical ways of doing work, even though they were environmentally unfriendly	4.98 (1.62)	4.05 (1.87)	4.06 (1.81)	3.98 (1.62)	4.83 (1.60)	4.74 (1.57)
Pollute	5.13 (1.82)	4.07 (1.92)	4.14 (2.03)	4.41 (1.77)	5.03 (1.66)	5.04 (1.81)
Discourage employees who made environmental sustainability efforts	4.40 (2.13)	3.92 (1.88)	3.52 (1.97)	4.55 (2.02)	4.65 (1.91)	3.81 (2.05)
Not use public transportation or ride a bike to work	4.27 (1.80)	2.91 (1.75)	3.31 (1.80)	5.67 (1.54)	5.04 (1.56)	5.36 (1.61)
Throw away something that could have been reused	4.57 (1.89)	3.57 (1.89)	3.56 (1.94)	4.21 (1.91)	4.88 (1.76)	4.36 (1.90)

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Item	Lack of knowledge	Habit, personal preference	Health reasons	Safety reasons	Financial/cost considerations	Public relations
Stick to typical ways of doing work, even though they were environmentally unfriendly	4.65 (1.55)	4.36 (1.81)	3.27 (1.73)	2.93 (1.64)	3.23 (1.80)	3.48 (1.95)
Pollute	5.02 (1.74)	5.26 (1.64)	4.03 (2.05)	3.92 (2.06)	2.88 (1.83)	3.41 (1.98)
Discourage employees who made environmental sustainability efforts	3.71 (2.01)	4.50 (1.93)	2.69 (1.81)	2.70 (1.82)	2.42 (1.61)	2.91 (1.80)
Not use public transportation or ride a bike to work	5.40 (1.60)	5.27 (1.70)	3.71 (2.16)	3.12 (1.99)	5.04 (1.94)	2.59 (1.78)
Throw away something that could have been reused	5.05 (1.69)	4.82 (1.82)	2.74 (1.82)	2.80 (1.84)	3.79 (2.00)	3.14 (1.81)

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Item	Cultural norms	Self-image	Requirement
Stick to typical ways of doing work, even though they were environmentally unfriendly	3.56 (1.85)	3.55 (1.79)	2.68 (1.69)
Pollute	3.95 (1.96)	3.57 (1.90)	3.17 (1.99)
Discourage employees who made environmental sustainability efforts	3.22 (1.90)	3.11 (1.81)	2.36 (1.70)
Not use public transportation or ride a bike to work	2.63 (1.77)	3.07 (1.81)	2.51 (2.03)
Throw away something that could have been reused	3.77 (1.94)	3.37 (1.82)	2.73 (1.84)

Note. n = 110 to 301.

Appendix J1

Study 3: Correlations between Employee Green Behavior and Environmental Sustainability Motives by Behavioral Quadrant

Green Behavior Performance

	Proactive Factor			Reactive Factor			Employee Green Behavior Checklist		
Motive	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI
Environmental benefit	.21	.28	.19 - .36	.23	.30	.22 - .38	.24	.29	.21 - .38
Altruism	.16	.21	.12 - .30	.07	.09	.00 - .19	.12	.14	.05 - .24
Social responsibility	.22	.28	.20 - .37	.19	.24	.16 - .33	.23	.29	.20 - .37
Availability	.01	.02	-.07 - .11	.05	.06	-.03 - .15	.04	.05	-.04 - .14
Lack of achievement drive	.13	.17	.09 - .26	.13	.18	.09 - .27	.14	.19	.10 - .28
Lack of self-efficacy	.14	.18	.08 - .27	.15	.20	.10 - .29	.16	.21	.11 - .30
Lack of knowledge	.11	.14	.04 - .24	.13	.17	.07 - .27	.13	.17	.08 - .27
Habit, personal preference	.19	.26	.18 - .35	.16	.22	.13 - .31	.19	.25	.17 - .34
Health reasons	.14	.19	.10 - .28	.05	.06	-.03 - .15	.10	.13	.04 - .22
Safety reasons	.12	.16	.07 - .25	.06	.08	-.02 - .17	.10	.13	.04 - .22
Financial/cost considerations	.06	.08	-.01 - .18	-.01	-.01	-.11 - .08	.02	.03	-.07 - .13

Public relations	.25	.32	.23	-	.40	.17	.21	.12	-	.30	.23	.28	.20	-	.37
Cultural norms	.20	.26	.17	-	.34	.13	.17	.08	-	.26	.18	.23	.14	-	.31
Requirement	.01	.02	-.08	-	.11	-.06	-.07	-.17	-	.02	-.03	-.04	-.13	-	.06
Self-image	.21	.26	.18	-	.35	.06	.08	-.02	-	.17	.14	.18	.08	-	.27

Note. N = 263 to 330. ρ = Observed correlation coefficient corrected for unreliability in employee green behavior and environmental sustainability motive. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Appendix J2

Green Behavior Omission

Motive	Proactive Factor					Reactive Factor					Employee Green Behavior Checklist				
	r	ρ	90% CI			*r*	ρ	90% CI			*r*	ρ	90% CI		
Environmental benefit	-.06	-.07	-.17	-	.02	-.14	-.17	-.27	-	-.08	-.11	-.14	-.24	-	-.05
Altruism	-.09	-.11	-.21	-	-.02	-.18	-.22	-.31	-	-.14	-.15	-.19	-.28	-	-.10
Social responsibility	-.11	-.14	-.23	-	-.05	-.18	-.23	-.32	-	-.14	-.16	-.21	-.30	-	-.12
Apathy	-.15	-.19	-.29	-	-.10	-.11	-.15	-.24	-	-.05	-.14	-.18	-.28	-	-.09
Carelessness	-.12	-.16	-.25	-	-.06	-.13	-.17	-.27	-	-.08	-.14	-.18	-.28	-	-.09
Self-image	-.13	-.17	-.26	-	-.08	-.19	-.25	-.34	-	-.16	-.18	-.24	-.33	-	-.15
Habit, personal preference	-.03	-.04	-.14	-	.05	-.15	-.20	-.29	-	-.11	-.11	-.15	-.24	-	-.05
Availability	-.08	-.13	-.22	-	-.04	-.10	-.16	-.25	-	-.07	-.10	-.16	-.25	-	-.07
Achievement drive	-.14	-.20	-.29	-	-.10	-.25	-.35	-.44	-	-.27	-.22	-.32	-.40	-	-.23
Self-efficacy	-.09	-.13	-.22	-	-.03	-.11	-.16	-.26	-	-.07	-.12	-.17	-.26	-	-.07
Lack of knowledge	-.07	-.10	-.20	-	.00	-.07	-.10	-.21	-	.00	-.08	-.11	-.21	-	-.01
Health reasons	-.01	-.01	-.10	-	.09	-.16	-.21	-.31	-	-.12	-.10	-.14	-.23	-	-.04
Safety reasons	-.03	-.04	-.13	-	.06	-.14	-.19	-.29	-	-.10	-.11	-.14	-.24	-	-.05
Financial/cost considerations	-.06	-.07	-.17	-	.02	-.15	-.20	-.29	-	-.10	-.12	-.16	-.25	-	-.06
Public relations	-.23	-.30	-.39	-	-.22	-.32	-.42	-.49	-	-.34	-.31	-.40	-.48	-	-.32
Cultural norms	-.01	-.01	-.11	-	.08	-.16	-.20	-.29	-	-.11	-.10	-.13	-.22	-	-.03
Requirement	-.18	-.25	-.34	-	-.16	-.24	-.35	-.43	-	-.26	-.23	-.33	-.42	-	-.25

Note. N = 255 to 310. ρ = Observed correlation coefficient corrected for unreliability in employee green behavior and environmental sustainability motive. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Appendix J3

Ungreen Behavior Commission

Motive	Proactive Factor					Reactive Factor					Employee Green Behavior Checklist				
	r	ρ	90% CI			*r*	ρ	90% CI			*r*	ρ	90% CI		
Environmental benefit	.00	-.01	-.10	-	.09	-.13	-.17	-.26	-	-.07	-.07	-.09	-.19	-	.00
Altruism	.00	.00	-.09	-	.09	-.10	-.13	-.22	-	-.04	-.06	-.07	-.17	-	.02
Social responsibility	.01	.01	-.08	-	.10	-.12	-.15	-.24	-	-.06	-.06	-.08	-.17	-	.01
Apathy	-.10	-.14	-.23	-	-.05	-.14	-.20	-.29	-	-.11	-.13	-.19	-.28	-	-.10
Carelessness	.00	-.01	-.10	-	.09	-.09	-.13	-.22	-	-.04	-.05	-.07	-.16	-	.02
Self-image	-.06	-.09	-.18	-	.00	-.13	-.19	-.28	-	-.10	-.11	-.15	-.24	-	-.06
Availability	.05	.08	-.01	-	.18	.04	.07	-.02	-	.17	.05	.09	-.01	-	.18
Achievement drive	.02	.03	-.07	-	.13	.00	.00	-.10	-	.10	.01	.01	-.08	-	.11
Self-efficacy	.02	.04	-.06	-	.14	-.02	-.03	-.12	-	.07	.01	.02	-.08	-	.11
Habit/personal pref.	-.01	-.02	-.11	-	.08	.00	.00	-.09	-	.09	-.01	-.01	-.10	-	.09
Health reasons	.03	.05	-.05	-	.15	-.03	-.04	-.13	-	.06	.00	.00	-.10	-	.10
Safety reasons	.07	.09	.00	-	.19	-.04	-.05	-.15	-	.05	.01	.01	-.08	-	.11
Financial/cost considerations	.02	.03	-.07	-	.12	-.04	-.07	-.16	-	.03	-.02	-.03	-.12	-	.07
Requirement	.08	.14	.04	-	.23	-.04	-.07	-.16	-	.03	.02	.03	-.07	-	.13
Public relations	-.17	-.25	-.34	-	-.16	-.24	-.35	-.43	-	-.27	-.23	-.33	-.42	-	-.25
Cultural norms	-.15	-.22	-.31	-	-.13	-.25	-.38	-.46	-	-.30	-.22	-.33	-.42	-	-.25
Lack of knowledge	-.08	-.13	-.22	-	-.04	-.03	-.05	-.15	-	.04	-.06	-.10	-.19	-	.00

Note. N = 285 to 317. ρ = Observed correlation coefficient corrected for unreliability in employee green behavior and environmental sustainability motive. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Appendix J4

Ungreen Behavior Avoidance

Motive	Proactive Factor				Reactive Factor				Employee Green Behavior Checklist			
	r	ρ	90% CI		*r*	ρ	90% CI		*r*	ρ	90% CI	
Environmental benefits	.19	.25	.16	.34	.15	.20	.10	.29	.19	.24	.15	.33
Altruism	.20	.26	.17	.34	.13	.17	.08	.26	.17	.23	.14	.31
Social responsibility	.23	.30	.22	.39	.20	.26	.17	.34	.23	.30	.22	.38
Availability	-.03	-.04	-.13	.06	-.08	-.11	-.21	-.02	-.06	-.08	-.18	.02
Achievement drive	.20	.26	.16	.36	.12	.16	.05	.26	.17	.23	.13	.33
Self-efficacy	.06	.09	-.01	.18	-.01	-.01	-.11	.09	.03	.03	-.06	.13
Lack of knowledge	.07	.10	.00	.20	.05	.06	-.03	.16	.06	.08	-.02	.18
Habit, personal preference	.08	.11	.02	.21	.03	.04	-.06	.13	.05	.08	-.02	.17
Health reasons	.08	.12	.03	.21	.11	.15	.06	.24	.11	.15	.06	.24
Safety reasons	.14	.19	.08	.29	.06	.07	-.03	.18	.11	.14	.04	.25
Financial/cost considerations	.13	.17	.08	.26	.14	.19	.10	.28	.14	.19	.11	.28
Public relations	.22	.28	.19	.37	.15	.19	.09	.28	.20	.25	.16	.34
Cultural norms	.22	.28	.19	.37	.13	.16	.06	.26	.18	.23	.14	.32
Self-image	.14	.17	.07	.26	.08	.10	.00	.19	.11	.13	.04	.23
Requirement	-.06	-.09	-.19	.01	-.11	-.16	-.26	-.06	-.10	-.15	-.25	-.05

Note. N = 235 to 329. ρ = Observed correlation coefficient corrected for unreliability in employee green behavior and environmental sustainability motive. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Table 1

Study 1: Phases of Motive Sorting used to Determine Functional Motive Categories

	Phase	Subject matter experts (SMEs)	Type of sort	What was sorted	Number of categories	Overall rater agreement
Sample 1	Phase 1	2 SMEs	Open, exploratory sort	Unconstrained identification of motive clusters: Sorted all motives collected (n = 1,827) in critical incident interviews for Sample 1 into categories		
	Phase 2	2 new SMEs	Closed sort	Combined clusters created by the two SMEs in Phase 1 into a final set of categories	14 motive categories	
Sample 2	Phase 3	2 SMEs, third SME for disputes	Confirmatory sort	Sorted all motives collected (n = 894) in critical incident interviews from Sample 2 into the categories established in Phase 2	16 motive categories[a]	93.7% agreement
Sample 3	Cross-national replication	2 SMEs, third SME as tie-breaker	Confirmatory sort	Sorted all motives collected (n = 1,079) in critical incident interviews from Study 3 into the categories established in Phase 3	16 motive categories	99.3% agreement

[a]An additional motive category, social responsibility, emerged from the incidents obtained in Sample 2. A lack of self-efficacy category was also added after a theoretical and conceptual review of the motive categories.

Table 2

Functional Motives of and Barriers to Environmentally Responsible and Irresponsible Behaviors from Study 1

Motive category	Category definition	Examples
Environmental benefit	To help the environment, to have positive environmental impacts	Better for the environment, sustainable thing to do
Altruism	Helping others by acting on their behalf	Show support for the group, help organization
Social responsibility[a]	A sense of responsibility to help society at large, future-mindedness	Concern for one's family and their future
Health reasons	Engaging or avoiding a behavior given the associated health benefits or risks	Healthy thing to do, cleanliness
Safety reasons	Maintaining a safe working environment or avoiding unsafe behaviors	Less hazardous, safe thing to do
Financial/cost considerations	Financial benefit from engaging in the behavior, or avoiding a behavior due to costs	Less/more costly, save money
Public relations	Maintaining the organization's image	Look good for the public, based on customer feedback or concern
Cultural norms	Societal, group, or office culture guides behavior	Company culture, country culture, cultural trends
Requirement	Required as a part of the employee's job duties	Company policy, job requirement

Table 2 (continued)

Motive category	Category definition	Examples
Habit, personal preference	Engaging in a behavior because of preference or habit	Preference, comfortable thing to do
Availability	An environmental option is available or convenient (or is unavailable or inconvenient)	Availability, convenience
Lack of achievement drive	Lacking motivation to make use of an environmentally friendly option	Not worth the effort, did not feel like, laziness
Apathy	Being ambivalent to the impact of one's actions	Don't care, don't think about it
Carelessness	When forgetfulness or haste interferes with one's performance of environmentally friendly behaviors	Forgetting to turn off, being in a rush or hurry
Lack of knowledge	Not knowing about, or how to use, an environmentally friendly option	Do not have knowledge
Lack of self-efficacy[b]	Belief that one's actions will not bring about or have an impact on desired outcomes	Do not have the ability

Note. Categories emerged after an initial exploratory sort of motives performed with sample one data and a confirmatory sort performed in study two.
[a]The social responsibility motive category emerged from critical incidents that were examined in Sample 2.
[b]Self-efficacy was added to the motive taxonomy after a conceptual and theoretical review of categories.

Table 3

Study 1: Number and Proportion of All Incidents by Motive Category for Sample 1, Phase 2

Motive category	*N*	Proportion of total incidents
Environmental benefit	622	48.8%
Financial/cost considerations	252	19.8%
Availability	212	16.6%
Requirement	201	15.8%
Habit, personal preference	177	13.9%
Lack of achievement drive	73	5.7%
Lack of knowledge	49	3.8%
Cultural norms	55	4.3%
Carelessness	48	3.8%
Health reasons	43	3.4%
Apathy	27	2.1%
Public relations	25	2.0%
Safety reasons	21	1.6%
Altruism	22	1.7%

Note. Percents add up to greater than 100% since participants could provide multiple motives.
The motives of social responsibility and lack of self-efficacy are excluded from this table given that they did not emerge until the Sample 2.

Table 4

*Study 1: Number and Proportion of Motives for **Positive** Incidents by Motive Category for Sample 1 (Phase 2)*

Motive category	*N*	Proportion of motives for positive incidents
Environmental benefit	607	46.2%
Financial/cost considerations	226	17.2%
Requirement	122	9.3%
Habit, personal preference	110	8.4%
Availability	96	7.3%
Cultural norms	41	3.1%
Health reasons	28	2.1%
Lack of knowledge	22	1.7%
Altruism	20	1.5%
Public relations	17	1.3%
Safety reasons	16	1.2%
Lack of achievement drive	6	0.5%
Carelessness	3	0.2%
Apathy	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives.
The motives of social responsibility and lack of self-efficacy are excluded from this table given that they did not emerge until the Sample 2.

Table 5

*Study 1: Number and Proportion of Motives for **Negative** Incidents by Motive Category for Sample 1 (Phase 2)*

Motive category	*N*	Proportion of motives for negative incidents
Availability	116	22.6%
Requirement	79	15.4%
Habit, personal preference	67	13.1%
Lack of achievement drive	67	13.1%
Carelessness	45	8.8%
Lack of knowledge	27	5.3%
Apathy	27	5.3%
Financial/cost considerations	26	5.1%
Environmental benefit	15	2.9%
Health reasons	15	2.9%
Cultural norms	14	2.7%
Public relations	8	1.6%
Safety reasons	5	1.0%
Altruism	2	0.4%

Note. Percents add up to greater than 100% since participants could provide multiple motives.
The motives of social responsibility and lack of self-efficacy are excluded from this table given that they did not emerge until the Sample 2.

Table 6

Study 1: Multiple Motive Combinations for Sample 1, Phase 2.

Multiple motive categories	Proportion of total incidents
Environmental benefit & Financial/cost considerations	8.6%
Environmental benefit & Habit/personal preference	3.5%
Environmental benefit & Requirement	1.5%
Availability & Lack of achievement drive	1.4%
Availability & Financial/cost considerations	1.2%
Availability & Environmental benefit	1.2%
Habit/personal preference & Requirement	1.2%
Financial/cost considerations, Environmental benefit & Habit/personal preference	1.0%
Availability & Habit/personal preference	0.9%
Cultural norms & Lack of knowledge	0.8%
Environmental benefit & Health reasons	0.8%
Public relations & Requirement	0.8%
Health reasons & Requirement	0.7%
Availability & Requirement	0.6%
Apathy & Carelessness	0.5%
Habit/personal preference & Health reasons	0.5%
Availability & Cultural norms	0.5%
Cultural norms & Environmental benefits	0.5%
Availability, Environmental benefits & Habit/personal preference	0.5%
Habit/personal preference & Public relations	0.5%
Environment benefit & Lack of knowledge	0.4%
Environmental benefit, Habit/personal preference, & Safety reasons	0.4%
Financial/cost considerations & Habit/personal preference	0.4%
Financial/cost considerations & Requirement	0.4%
Altruism & Environmental benefit	0.3%
Cultural norms & Requirement	0.3%
Carelessness & Habit/personal preference	0.3%
Carelessness & Lack of achievement drive	0.3%
Financial/cost considerations & Environment benefit & Requirement	0.3%

Multiple motive categories	Proportion of total incidents
Habit/personal preference & Lack of achievement drive	0.2%
Cultural norms, Environment benefit & Habit/personal preference	0.2%
Lack of achievement drive & Requirement	0.2%
Availability, Cultural norms & Environmental benefit	0.2%
Altruism, Environmental benefit, & Habit/personal preference	0.2%
Lack of knowledge & Requirement	0.2%
Altruism, Financial/cost considerations & Environmental benefit	0.2%
Environment benefit, Requirement & Safety reasons	0.2%
Environment benefit & Public relations	0.2%
Health reasons & Safety reasons	0.2 %
Availability, Environmental benefit, & Health reasons	0.2%
Requirement & Safety reasons	0.2 %
Cultural norms, Public relations, & Requirement	0.2%
Lack of achievement drive & Lack of knowledge	0.2%
Apathy & Habit/personal preference	0.2%
Availability & Lack of knowledge	0.2%
Environmental benefit & Safety reasons	0.2%
Financial/cost considerations & Public relations	0.2%
Habit/personal preference & Lack of knowledge	0.2%
Apathy & Lack of achievement drive	0.2 %
Cultural norms & Habit/personal preference	0.2%
Availability, Financial/cost considerations, & Habit/personal preference	0.2%

Note. All motive categories cited together more than once are listed. An additional 30 combinations were cited together only once.

Table 7

Study 1: Average Proportion of Rater Agreement for each Motive Category for Sample 2 (Phase 3)

Motive category	Proportion of rater agreement
Environmental benefit	97.0%
Availability	96.6%
Financial/cost considerations	95.7%
Requirement	93.8%
Lack of achievement drive	93.6%
Safety reasons	93.3%
Health reasons	90.5%
Habit, personal preference	90.2%
Carelessness	84.8%
Public relations	83.3%
Cultural norms	81.3%
Lack of knowledge	76.7%
Apathy	75.8%
Social responsibility	72.7%
Altruism	71.2%
Overall	93.7%

Note. The lack of self-efficacy motive is not in this table given that it was added after a theoretical and conceptual review of the motive taxonomy.

Table 8

Study 1: Proportion of All Incidents by Motive Category for Sample 2 (Phase 3)

Motive Category	*N*	Proportion of total incidents
Environmental benefit	381	51.5%
Financial/cost considerations	115	15.5%
Availability	107	14.5%
Habit, personal preference	102	13.8%
Requirement	64	8.6%
Lack of achievement drive	26	3.5%
Altruism	22	3.0%
Cultural norms	16	2.2%
Apathy	11	1.5%
Carelessness	11	1.5%
Social responsibility	11	1.5%
Lack of knowledge	10	1.4%
Health reasons	7	0.9%
Public relations	6	0.8%
Safety reasons	5	0.7%

Note. Percents add up to greater than 100% since participants could provide multiple motives. The lack of self-efficacy motive is not in this table given that it was added after a theoretical and conceptual review of the motive taxonomy.

Table 9

*Study 1: Proportion of Motives for **Positive** Incidents by Motive Category for Sample 2 (Phase 3)*

Motive category	*N*	Proportion of motives
Environmental benefit	373	50.5%
Financial/cost considerations	114	15.4%
Habit, personal preference	78	10.6%
Availability	68	9.2%
Requirement	47	6.4%
Altruism	20	2.7%
Cultural norms	13	1.8%
Social responsibility	11	1.5%
Public relations	6	0.8%
Health reasons	5	0.7%
Lack of knowledge	3	0.4%
Safety reasons	1	0.1%
Carelessness	0	0.0%
Apathy	0	0.0%
Lack of achievement drive	0	0.0%
Lack of self-efficacy	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives.

Table 10

*Study 1: Proportion of Motives for all **Negative** Incidents by Motive Category for Sample 2 (Phase 3)*

Motive category	*N*	Proportion of motives
Availability	39	25.2%
Lack of achievement drive	26	16.8%
Habit, personal preference	24	15.5%
Requirement	17	11.0%
Apathy	11	7.1%
Carelessness	11	7.1%
Environmental benefit	8	5.2%
Lack of knowledge	7	4.5%
Safety reasons	4	2.6%
Cultural norms	3	1.9%
Altruism	2	1.3%
Health reasons	2	1.3%
Financial/cost considerations	1	0.6%
Public relations	0	0.0%
Social responsibility	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives. The lack of self-efficacy motive is not in this table given that it was added after a theoretical and conceptual review of the motive taxonomy.

Table 11

Study 1: Multiple Motive Combinations for Sample 2 (Phase 3).

Multiple motive categories	Proportion of total incidents
Environmental benefit & Financial/cost considerations	6.5%
Altruism & Social responsibility	1.2%
Availability & Habit, personal preference	1.1%
Availability & Lack of achievement drive	1.1%
Environmental benefit & Habit, personal preference	1.1%
Environmental benefit & Availability	1.1%
Financial/cost considerations & Availability	0.8%
Availability & Requirement	0.8%
Financial/cost considerations & Habit, personal preference	0.5%
Lack of achievement drive & Apathy	0.5%
Environmental benefit & Cultural norms	0.5%
Environmental benefit, Availability, & Altruism	0.4%
Environmental benefit & Requirement	0.4%
Environmental benefit & Altruism	0.4%
Habit, personal preference, Lack of achievement drive, & Carelessness	0.3%
Environmental benefit & Health reasons	0.3%
Environmental benefit & Social responsibility	< 0.1%
Availability & Altruism	< 0.1%
Cultural norms & Social responsibility	< 0.1%
Habit, personal preference & Carelessness	< 0.1%
Habit, personal preference & Safety reasons	< 0.1%
Habit, personal preference & Achievement drive	< 0.1%
Environmental benefit, Financial/cost considerations, & Habit, personal preference	< 0.1%

Multiple motive categories	Proportion of total incidents
Habit, personal preference & Lack of knowledge	< 0.1%
Achievement drive & Cultural norms	< 0.1%
Habit, personal preference & Requirement	< 0.1%
Environmental benefit, Financial/cost considerations, & Cultural norms	< 0.1%
Requirement & Health reasons	< 0.1%
Availability & Lack of knowledge	<0.1%
Requirement & Safety reasons	< 0.1%
Financial/cost considerations & Cultural norms	< 0.1%
Financial/cost considerations, Habit, personal preference, & Cultural norms	< 0.1%

Table 12

Study 1: Average Proportion of Rater Agreement for each Motive Category: European Sample (Sample 3)

Motive category	Proportion of rater agreement
Environmental benefit	100.0%
Public relations	100.0%
Lack of knowledge	100.0%
Apathy	100.0%
Altruism	100.0%
Availability	98.9%
Health reasons	98.9%
Financial/cost considerations	98.3%
Requirement	97.4%
Habit, personal preference	97.4%
Carelessness	95.2%
Social responsibility	95.2%
Safety reasons	88.9%
Lack of achievement drive	80.0%
Cultural norms	66.7%[a]
Lack of self-efficacy	NA
Overall	99.3%

Note. [a]Based on only one observed critical incident in this category.

Table 13

Study 1: Number and Proportion of All Incidents by Motive Category in European Sample (Sample 3)

Motive category	*N*	Proportion of total incidents
Environmental benefit	785	78.3%
Availability	89	8.9%
Financial/cost considerations	39	3.9%
Habit, personal preference	38	3.8%
Requirement	38	3.8%
Health reasons	31	3.1%
Carelessness	21	2.1%
Social Responsibility	14	1.4%
Public relations	8	0.8%
Lack of achievement drive	5	0.5%
Apathy	4	0.4%
Safety reasons	3	0.3%
Altruism	2	0.2%
Cultural Norms	1	0.1%
Lack of knowledge	1	0.1%
Lack of self-efficacy	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives.

Table 14

*Study 1: Number and Proportion of Motives for all **Positive** Incidents by Motive Category: European Sample (Sample 3).*

Motive category	*N*	Proportion of motives
Environmental benefit	776	87.2%
Financial/cost considerations	36	4.0%
Availability	24	2.7%
Health reasons	17	1.9%
Social responsibility	14	1.6%
Habit, personal preference	7	0.8%
Requirement	7	0.8%
Public relations	4	0.4%
Altruism	2	0.2%
Carelessness	2	0.2%
Safety reasons	1	0.1%
Apathy	0	0.0%
Cultural norms	0	0.0%
Lack of self-efficacy	0	0.0%
Lack of achievement drive	0	0.0%
Lack of knowledge	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives.

Table 15

*Study 1: Number and Proportion of **Negative** Incidents by Motive Category: European Sample (Sample 3)*

Motive category	*N*	Proportion of motives
Availability	65	34.4%
Requirement	38	20.1%
Habit, personal preference	31	16.4%
Carelessness	19	10.1%
Health reasons	14	7.4%
Environmental benefit	9	4.8%
Lack of achievement drive	5	2.6%
Apathy	4	2.1%
Public relations	4	2.1%
Financial/cost considerations	3	1.6%
Safety reasons	2	1.1%
Cultural norms	1	0.5%
Lack of knowledge	1	0.5%
Altruism	0	0.0%
Lack of self-efficacy	0	0.0%
Social responsibility	0	0.0%

Note. Percents add up to greater than 100% since participants could provide multiple motives.

Table 16

Study 1: Multiple Motive Combinations in European Sample (Sample 3).

Multiple motive categories	Proportion of total incidents
Environmental benefit & Financial/cost considerations	3.2%
Environmental benefit & Health reasons	1.1%
Environmental benefit & Availability	1.0%
Environmental benefit & Habit, personal preference	0.6%
Availability & Health reasons	0.2%
Habit, personal preference & Requirement	0.2%
Availability & Financial/cost considerations	0.2%
Environmental benefit & Requirement	0.2%
Availability and Apathy	0.1%
Environmental benefit & Altruism	0.1%
Requirement & Public relations	0.1%
Apathy & Carelessness	0.1%
Health reasons & Public relations	0.1%
Health reasons & Requirement	0.1%
Financial/cost considerations & Public relations	0.1%
Health reasons & Safety reasons	0.1%

Table 17

Sustainability Variables Meta-Analyzed for Study 2: Gender Differences

Sustainability Variable
Informational Variables
Environmental Awareness
Environmental Knowledge
Environmental Motivation
Social Responsibility
Self-efficacy
Expectancy
Social Norms
Lack of Knowledge
Motivationally-relevant Variables
Environmental Values
Environmental Concern (general and specific)
Environmental Commitment
Environmental Behavioral Intentions
Environmental Attitudes
Pro-Environmental Behaviors
General
Avoiding Harm
Conserving
Influencing Others
Responsible Product Choices
Taking Initiative

Table 18

Study 2: Descriptive Information on Reliability Distributions Used to Correct Correlations

Sustainability Variable	No. of values	*M*	*SD*	Mean of the square roots of reliabilities	Std. dev. of the square roots of reliabilities
Informational Variables					
Awareness	91	.72	.09	.85	.06
Knowledge	14	.72	.10	.85	.06
Before 1995	4	.78	.05	.88	.03
1995 and later	10	.70	.10	.83	.06
Motives					
Social Responsibility	--	--	--	--	--
Self-Efficacy	3	.78	.03	.88	.01
Expectancy	2	.84	.16	.91	.09
Social Norms	--	--	--	--	--
Financial/Cost Considerations	--	--	--	--	--
Lack of Knowledge	1	.77	--	.88	--
Barrier Scale	34	.68	.06	.82	.04
Motivationally-relevant Variables					
Environmental Values	14	.85	.05	.92	.03
Environmental Concern					
General	25	.76	.10	.87	.06
Before 1995	8	.73	.09	.85	.05
1995 and later	17	.77	.10	.88	.06
Specific Issues	44	.79	.07	.89	.04
Environmental Commitment	242	.69	.13	.83	.08
Before 1995	18	.67	.12	.82	.08
1995 and later	224	.70	.13	.83	.08
Environmental Behavioral Intentions	2	.89	.00	.94	.00
Environmental Attitudes	77	.71	.08	.84	.05
Pro-Environmental Behaviors					
General	18	.73	.11	.85	.06
Avoiding Harm	--	--	--	--	--
Conserving	85	.48	.16	.68	.13
Influencing Others	--	--	--	--	--
Responsible Product Choices	36	.62	.10	.79	.07
Taking Initiative	92	.51	.13	.71	.10

Table 19

Study 2: Overall Meta-Analyses for Sustainability Variables

Sustainability Variable	*N*	*K*	Mean d_{obs}	SD_{obs}	SD_{res}	Mean $d_{corrected}$	$SD_{corrected}$	% variance SE	% variance acc. for	90% Credibility Interval
Informational Variables										
Awareness	432,422	93	–.09	.15	.15	–.10	.18	3.62	3.76	–.40 - .19
Knowledge	12,241	24	–.34	.21	.19	–.40	.23	17.42	18.43	–.77 - –.02
Before 1995	4,921	11	–.44	.19	.16	–.50	.18	26.04	26.44	–.80 - –.20
1995 and later	7,319	13	–.27	.20	.18	–.32	.22	17.34	18.15	–.69 - .03
Motives										
Social Responsibility	977	2	.15	.07	.00	.15	.00	—	—	.15 - .15
Self-Efficacy	1,478	4	.26	.16	.13	.29	.14	40.44	40.48	.06 - .53
Expectancy	1,046	3	.25	.23	.20	.27	.22	21.65	22.20	–.10 - .64
Social Norms	504	2	.45	.07	.00	.45	.00	—	—	.45 - .45
Financial/Cost Considerations	43,630	34	.03	.08	.06	.03	.06	44.65	44.65	–.07 - .13
Lack of Knowledge	2,922	1	.17	—	—	.20	—	—	—	— —
Barrier Scale	40,408	34	–.12	.14	.13	–.15	.16	16.84	17.01	–.40 - .11
Motivationally-Relevant Variables										
Values	80,440	72	.04	.12	.12	.05	.11	26.49	26.50	–.13 - .23
Concern										
General	68,932	76	.14	.15	.13	.17	.16	19.48	19.87	–.09 - .42
Before 1995	8,043	15	.15	.19	.17	.18	.20	20.46	20.68	–.15 - .50
1995 and later	60,889	61	.14	.14	.13	.16	.15	19.25	19.68	–.07 - .41
Specific Issues	61,723	56	.20	.14	.12	.23	.14	19.27	19.71	.00 - .46
Commitment	609,793	244	–.03	.10	.10	–.04	.16	14.79	14.87	–.22 - .15
Before 1995	20,305	19	.04	.14	.12	.05	.15	20.30	20.36	–.19 - .29
1995 and later	589,488	225	–.03	.10	.09	–.03	.11	14.78	14.68	–.22 - .15

Sustainability Variable	*N*	*K*	Mean d_{obs}	SD_{obs}	SD_{res}	Mean $d_{corrected}$	$SD_{corrected}$	% variance SE	% variance acc. for	90% Credibility Interval
Intentions	566	4	.16	.29	.23	.17	.25	33.94	33.94	–.24 - .58
Attitudes	406,066	89	.09	.12	.12	.19	.14	5.66	6.21	–.04 - .19
Behavior										
General	13,752	24	.23	.22	.21	.27	.24	14.05	14.60	–.13 - .67
Avoiding Harm	34,277	36	.13	.10	.07	.13	.07	45.94	45.94	.01 - .24
Conserving	105,868	95	.13	.13	.12	.19	.17	20.31	23.56	–.09 - .47
Influencing Others	2,425	4	–.08	.19	.17	–.08	.17	18.25	18.25	–.36 - .20
Responsible Product Choices	45,985	42	.17	.12	.11	.21	.14	23.98	25.20	–.01 - .44
Taking Initiative	120,747	103	–.01	.13	.11	–.02	.16	20.74	20.76	–.28 - .24

Note. *K* = number of effect sizes included in the meta-analysis. Mean d_{obs} = sample size weighted mean observed *d* value (standardized group mean-score difference; positive values indicate women scored higher on average). SD_{obs} = sample size weighted standard deviation of observed effect sizes. SD_{res} = residual standard deviation (after corrections for criterion unreliability and sampling error). Mean $d_{corrected}$ = corrected *d* value. $SD_{corrected}$ = standard deviation of the corrected *d* value. % variance SE = percentage of variance due to sampling error; % variance acc. for = percentage of variance due to all corrected statistical artifacts.

Table 20

Study 3: Intercorrelations between Employee Green Behavior Checklist Scale and Subscales

Subscale/Scale	1	2	3
1. Proactive Factor	(.70)	.57, .68	.86, .90
2. Reactive Factor	.63	(.70)	.91, .93
3. Green Five Checklist	.88	.92	(.81)

Note. Intercorrelations are below the diagonal. Reliabilities of each scale/subscale are on the diagonal. 90% confidence intervals (two-tailed) around the observed correlations are above the diagonal. Relationships listed for the Green Five Checklist are part-whole correlations.

Table 21

Study 3: Eighteen Employee Green Behavior Items associated with Employee Environmental Sustainability Motive Scale Items

Behavior	**Green Five Facet**	**Green Five Factor**
Green Behavior Items		
1. Monitored how my own behavior impacted the environment.	Avoiding Harm	Reactive
2. Was involved in projects that tried to repair damage to the environment.	Avoiding Harm	Reactive
3. Monitored how my own behavior impacted the environment.	Avoiding Harm	Reactive
4. Disposed of waste properly.	Avoiding Harm	Reactive
5. Recycled or composted (for example, paper, metal, organic matter).	Conserving	Reactive
6. Used resources frugally.	Conserving	Reactive
7. Found new uses for discarded or surplus items.	Conserving	Reactive
8. Encouraged and supported others to be environmentally responsible.	Influencing others	Proactive
9. Developed or implemented environmental initiatives.	Taking initiative	Proactive
10. Behaved in an environmentally responsible way even when it was inconvenient.	Taking initiative	Proactive
11. Changed my work habits to be more environmentally sustainable.	Working Sustainably	Proactive
12. Made environmentally responsible product choices.	Working Sustainably	Proactive
13. Generated creative ideas relating to environmental sustainability.	Working Sustainably	Proactive
Ungreen Behavior Items		
14. Polluted.	Avoiding Harm	Reactive
15. Threw away something that could have been reused.	Conserving	Reactive
16. Discouraged employees who made environmental sustainability efforts.	Influencing Others	Proactive
17. Did not use public transportation or ride a bike to work.	Working Sustainably	Proactive
18. Stuck to typical ways of doing work, even though they were environmentally unfriendly.	Working Sustainably	Proactive

Table 22

Study 3: Employee Environmental Sustainability Motives Scale: Response Options

Reasons for engaging in a green behavior/ Not engaging in an ungreen behavior
for environmental benefits
for financial considerations
was available or convenient
was required
out of habit or personal preference
didn't mind the extra effort
for health reasons
for safety reasons
desired to help others
to contribute to or maintain my organization's eco-friendly image
to fulfill my responsibility to future generations
because I knew how to
was valued in my department/unit or culture
because I thought I was capable of doing it
to contribute to or maintain my own eco-friendly image

Reasons for not engaging in a green behavior/ Reasons for engaging in ungreen behaviors
environment was not important to me
for financial considerations
was not available or convenient
I was required not to
out of habit or personal preference
would have been a hassle
for health reasons
for safety reasons
didn't need or want to help others
projecting an eco-friendly image is not important for the university
do not feel responsible to future generations
didn't know how to
not valued in my department/unit or culture
because I thought I wouldn't be capable of doing it
projecting an eco-friendly image of myself is not important
was careless
did not care

Table 23

Study 3: Exploratory Factor Analysis of Environmental Sustainability Motives from Initial Item Pool: ***Green Behavior Performance***

	Factor			
Motive Category	Enabling Capability	Extrinsic	Prosocial	Image
Knowledge	**.91**	.03	–.04	–.04
Self-efficacy	**.86**	.02	.09	.05
Achievement drive	**.80**	–.08	.21	.00
Availability	**.80**	.01	–.23	.06
Habit, personal preference	**.74**	.05	.17	–.08
Safety reasons	–.01	**1.05**	.04	–.10
Health reasons	–.03	**.84**	.15	.01
Financial/cost considerations	.08	**.51**	–.06	.14
Social responsibility	.07	.21	**.75**	.13
Altruism	.15	.32	**.63**	.09
Environmental benefit	.29	.02	**.60**	.14
Public relations	–.05	–.03	.11	**.98**
Cultural norms	.16	.12	–.07	**.68**
Self-image	.04	.01	.43	**.61**
Requirement	.01	.30	–.41	**.48**
Eigenvalue (unrotated solution)	6.86	2.47	1.53	.99
% of variance	45.73	16.44	10.20	6.58
	Factor Correlations			
Enabling Capabilities	—			
Extrinsic	.34	—		
Prosocial	.34	.17	—	
Image	.34	.59	.15	—

Note. Values in boldface indicate the highest factor loading for each item.

Table 24

Study 3: Exploratory Factor Analysis of Environmental Sustainability Motives from Initial Item Pool: ***Green Behavior Omission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Apathy	**.91**	–.09	–.04	.03
Environmental reasons	**.90**	.01	–.17	.10
Self-image	**.82**	–.04	–.10	.19
Social responsibility	**.80**	.16	–.01	–.01
Altruism	**.75**	.25	–.10	.03
Carelessness	**.66**	–.05	.19	.00
Habit, personal preference	**.64**	.09	.32	–.13
Health reasons	.01	**.99**	–.09	–.02
Safety reasons	.03	**.94**	–.02	–.02
Financial/cost considerations	.09	**.59**	.15	.12
Lack of knowledge	–.09	.01	**.76**	–.01
Availability	.04	–.10	**.76**	.10
Lack of self-efficacy	–.03	.21	**.64**	.08
Lack of achievement drive	.48	–.06	**.58**	.04
Cultural norms	–.03	.02	.07	**.91**
Public relations	.11	–.04	–.03	**.89**
Requirement	.03	.30	.14	**.34**
Eigenvalue (unrotated solution)	7.21	2.26	2.04	1.36
% of variance	42.39	13.31	11.99	7.99

Factor Correlations				
Prosocial	—			
Extrinsic	.33	—		
Enabling Capabilities	.26	.20	—	
Image	.41	.32	.28	—

Note. Values in boldface indicate the highest factor loading for each item.

Table 25

Study 3: Exploratory Factor Analysis of Environmental Sustainability Motives from Initial Item Pool: ***Ungreen Behavior Commission***

	Factor			
Motive Category	Prosocial	Extrinsic	Enabling Capabilities	Image
Environmental reasons	**.93**	.06	–.04	–.10
Social responsibility	**.82**	.12	.00	–.02
Altruism	**.79**	.15	–.08	.02
Self-image	**.76**	–.01	–.01	.11
Apathy	**.75**	–.12	.13	.05
Carelessness	**.53**	–.12	.11	.18
Safety reasons	.01	**.84**	.05	–.14
Health reasons	.07	**.78**	–.04	.02
Requirement	–.07	**.45**	–.11	.31
Financial/cost considerations	.13	**.39**	.11	.19
Lack of achievement drive	.02	.00	**.82**	.00
Availability	–.08	–.02	**.79**	.02
Habit, personal preference	.30	–.01	**.52**	–.05
Lack of self-efficacy	–.05	.22	**.34**	.29
Cultural norms	.17	.04	–.06	**.76**
Public relations	.32	.01	–.05	**.64**
Lack of knowledge	–.05	.02	.18	**.43**
Eigenvalue (unrotated solution)	5.84	2.24	1.98	1.12
% of variance	34.36	13.19	11.63	6.61
	Factor Correlations			
Prosocial	—			
Extrinsic	.18	—		
Enabling Capabilities	.26	.06	—	
Image	.38	.69	.31	—

Note. Values in boldface indicate the highest factor loading for each item.

Table 26

Study 3: Exploratory Factor Analysis of Environmental Sustainability Motives from Initial Item Pool: ***Ungreen Behavior Avoidance***

	Factor			
Motive Category	Image	Enabling Capabilities	Prosocial	Extrinsic
Public relations	**.90**	–.05	.08	.01
Self–image	**.67**	.02	.35	.00
Cultural norms	**.63**	.12	.09	.02
Requirement	**.53**	.04	–.27	.19
Knowing how	–.02	**.81**	.02	.09
Lack of self–efficacy	–.08	**.79**	.01	.16
Lack of achievement drive	–.01	**.71**	.16	–.07
Habit, personal preference	–.02	**.67**	.20	.03
Availability	.10	**.64**	–.16	–.07
Environmental benefit	.03	.20	**.71**	.10
Social responsibility	.21	.05	**.65**	.18
Altruism	.25	.10	**.58**	.21
Safety reasons	.00	–.06	.07	**.89**
Health reasons	.00	.04	.07	**.85**
Financial/cost considerations	.18	.23	–.07	**.43**
Eigenvalue (unrotated solution)	6.95	1.83	1.35	.90
% of variance	42.39	12.19	9.02	6.03
Factor Correlations				
Image	—			
Enabling Capabilities	.42	—		
Prosocial	.25	.31	—	
Extrinsic	.63	.32	.30	—

Note. Values in boldface indicate the highest factor loading for each item.

Table 27

Study 3: Congruence Coefficients Comparing Four Motive Factors across Motivation Quadrants

Motivation Quadrant and Motive Factor	Factor Congruence
Green Behavior Performance and Ungreen Avoidance	
Prosocial	.97
Enabling	.99
Extrinsic	.98
Image	.98
Green Behavior Omission and Ungreen Commission	
Prosocial	.98
Enabling Capabilities	.86
Extrinsic	.98
Image	.87

Table 28

Study 3: Correlations between Environmental Sustainability Motive Long Form Items: Green Behavior Performance and Omission, Ungreen Behavior Commission and Avoidance

	1	2	3	4
1. Green Behavior Performance	(.97)	–.60	–.12	.57
2. Green Behavior Omission	–.58	(.96)	.42	–.34
3. Ungreen Behavior Commission	–.11	.40	(.91)	–.63
4. Ungreen Behavior Avoidance	.55	–.33	–.59	(.96)

Note. N = 292 to 339. Observed correlations are below the diagonal; correlations corrected for unreliability of the scales are above the diagonal. Stratified alphas of the ESMS-LF scales by behavioral quadrant are on the diagonal.

Table 29

Study 3: Reliability and Inter-Item Correlations of Homogenous Item Clusters included in the Environmental Sustainability Motives Scale Long Form: ***Green Behavior Performance***

Subscales and homogenous item clusters	Alpha	# of Items	*M* (*SD*)	Mean HIC Inter-Item Correlation
Prosocial				
Environmental benefit	.82	3	5.02 (1.49)	.60
Altruism	.87	3	4.23 (1.60)	.69
Social responsibility	.89	3	3.74 (1.67)	.74
Enabling Capabilities				
Availability	.77	3	5.04 (1.35)	.53
Achievement drive	.79	3	5.19 (1.31)	.56
Self-efficacy	.86	3	4.89 (1.49)	.67
Knowledge	.86	3	4.98 (1.64)	.67
Habit, personal preference	.78	3	4.64 (1.67)	.54
Extrinsic Motives				
Health reasons	.85	3	3.19 (1.64)	.65
Safety reasons	.82	3	3.07 (1.67)	.60
Financial/cost considerations	.81	3	3.24 (1.56)	.59
Image Motives				
Public relations	.92	3	3.42 (1.63)	.79
Cultural norms	.86	3	3.71 (1.68)	.67
Requirement	.88	3	3.36 (1.72)	.71
Self-image	.90	3	3.38 (1.55)	.75

Note. *N* = 277 to 330. *M* = Mean average score on items comprising the homogenous item cluster. HIC = Homogenous Item Cluster.

Table 30

Study 3: Reliability and Inter-Item Correlations of Homogenous Item Clusters included in the Environmental Sustainability Motives Scale Long Form: ***Green Behavior Omission***

Subscales and homogenous item clusters	Alpha	# of Items	*M* (*SD*)	Mean HIC Inter-Item Correlation
Prosocial				
Environmental benefit	.89	3	2.16 (1.31)	.73
Altruism	.87	3	2.00 (1.14)	.69
Social responsibility	.88	3	2.17 (1.27)	.71
Apathy	.83	3	2.78 (1.59)	.62
Carelessness	.85	3	3.10 (1.63)	.65
Self-image	.81	3	2.55 (1.41)	.59
Habit, personal preference	.79	3	3.39 (1.60)	.56
Enabling Capabilities				
Availability	.59	4	4.86 (1.49)	.27
Achievement drive	.72	3	3.84 (1.66)	.46
Self-efficacy	.70	3	3.27 (1.59)	.44
Knowledge	.72	3	3.83 (1.67)	.46
Extrinsic Motives				
Health reasons	.80	3	2.13 (1.34)	.57
Safety reasons	.79	3	2.16 (1.44)	.56
Financial/cost considerations	.83	3	2.53 (1.51)	.62
Image Motives				
Public relations	.85	3	2.93 (1.68)	.65
Cultural norms	.86	3	3.18 (1.69)	.67
Requirement	.71	3	2.92 (1.77)	.45

Note. *N* = 288 to 310. *M* = Mean average score on items comprising the homogenous item cluster. HIC = Homogenous Item Cluster.

Table 31

Study 3: Reliability and Inter-Item Correlations of Homogenous Item Clusters included in the Environmental Sustainability Motives Scale Long Form: ***Ungreen Behavior Commission***

Subscales and homogenous item clusters	Alpha	# of Items	*M* (*SD*)	Mean HIC Inter-Item Correlation
Prosocial				
Environmental benefit	.86	3	2.06 (1.22)	.67
Altruism	.83	3	1.98 (1.11)	.62
Social responsibility	.87	3	2.23 (1.27)	.69
Apathy	.67	4	2.81 (1.50)	.40
Carelessness	.61	4	3.16 (1.50)	.34
Self-image	.72	3	2.55 (1.41)	.46
Enabling Capabilities				
Availability	.51	3	4.68 (1.58)	.26
Achievement drive	.60	2	4.85 (1.63)	.43
Self-efficacy	.52	2	3.23 (1.82)	.35
Habit, personal preference	.60	3	4.21 (1.53)	.33
Extrinsic Motives				
Health reasons	.67	3	2.61 (1.55)	.40
Safety reasons	.69	3	2.73 (1.60)	.43
Financial/cost considerations	.62	3	2.61 (1.47)	.35
Requirement	.49	3	3.05 (1.79)	.24
Image Motives				
Public relations	.69	3	2.82 (1.52)	.43
Cultural norms	.63	3	3.08 (1.53)	.36
Knowledge	.48	3	3.65 (1.58)	.24

Note. *N* = 285 to 317. *M* = Mean average score on items comprising the homogenous item cluster. HIC = Homogenous Item Cluster.

Table 32

Study 3: Reliability and Inter-Item Correlations of Homogenous Item Clusters included in the Environmental Sustainability Motives Scale Long Form: ***Ungreen Behavior Avoidance***

Subscales and homogenous item clusters	Alpha	# of Items	*M* (*SD*)	Mean HIC Inter-Item Correlation
Prosocial				
Environmental benefit	.87	3	4.87 (1.68)	.69
Altruism	.84	3	3.94 (1.71)	.64
Social responsibility	.85	3	3.74 (1.80)	.65
Enabling Capabilities				
Availability	.76	3	4.29 (1.60)	.51
Achievement drive	.84	3	4.80 (1.56)	.64
Self-efficacy	.77	3	4.99 (1.63)	.53
Knowledge	.75	3	4.92 (1.53)	.50
Habit, personal preference	.75	3	5.15 (1.54)	.50
Extrinsic Motives				
Health reasons	.75	3	3.21 (1.70)	.50
Safety reasons	.79	3	2.96 (1.77)	.56
Financial/cost considerations	.80	3	2.71 (1.59)	.57
Image Motives				
Public relations	.92	3	3.29 (1.83)	.79
Cultural norms	.88	3	3.51 (1.81)	.71
Requirement	.69	3	3.07 (1.76)	.43
Self-image	.94	3	3.47 (1.76)	.84

Note. *N* = 235 to 329. *M* = Mean average score on items comprising the homogenous item cluster. HIC = Homogenous Item Cluster.

Table 33

Study 3: Interrelations between Homogenous Item Clusters in the Environmental Sustainability Motives Scale: ***Green Behavior Performance***

Homogenous item cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Environmental benefit	(.82)	.63	.63	.28	.57	.46	.50	.56	.37	.32	.10	.25	.31	.43	-.06
2. Altruism	.53	(.87)	.77	.27	.52	.47	.45	.68	.47	.52	.17	.36	.36	.57	.09
3. Social responsibility	.54	.68	(.89)	.08	.45	.38	.40	.50	.43	.48	.09	.31	.33	.57	-.03
4. Availability	.22	.22	.07	(.77)	.64	.64	.68	.52	.22	.26	.28	.18	.38	.16	.23
5. Lack of achievement drive	.46	.43	.38	.50	(.79)	.76	.82	.70	.28	.31	.05	.21	.36	.30	-.01
6. Lack of self-efficacy	.39	.41	.33	.52	.63	(.86)	.84	.71	.21	.36	.25	.29	.48	.36	.16
7. Lack of knowledge	.42	.39	.35	.55	.68	.72	(.86)	.61	.26	.32	.22	.18	.45	.32	.21
8. Habit, personal preference	.45	.56	.42	.40	.55	.58	.50	(.78)	.26	.39	.20	.22	.42	.47	.01
9. Health reasons	.31	.40	.37	.18	.23	.18	.22	.21	(.85)	.92	.35	.49	.44	.54	.38
10. Safety reasons	.26	.44	.41	.21	.25	.30	.27	.31	.77	(.82)	.48	.48	.42	.48	.46
11. Financial/cost considerations	.08	.14	.08	.22	.04	.21	.18	.16	.29	.39	(.81)	.30	.36	.26	.37
12. Public relations	.22	.32	.28	.15	.18	.26	.16	.19	.43	.42	.26	(.92)	.73	.65	.49
13.Cultural norms	.26	.31	.29	.31	.30	.41	.39	.34	.38	.35	.30	.65	(.86)	.53	.52
14.Self-image	.37	.50	.51	.13	.25	.32	.28	.39	.47	.41	.22	.59	.47	(.90)	.17
15. Requirement	-.05	.08	-.03	.19	-.01	.14	.18	.01	.33	.39	.31	.44	.45	.15	(.88)

Note. N = 241 to 330. Observed correlations are below the diagonal. Reliabilities are on the diagonal. Correlations corrected for unreliability in measurement of motives is above the diagonal.

Table 34

Study 3: Interrelations between Homogenous Item Clusters in the Environmental Sustainability Motives Scale: ***Green Behavior Omission***

Homogenous item cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Environmental benefit	(.89)	.76	.70	.78	.54	.76	.55	.05	.47	.18	.04	.26	.20	.26	.39	.27	.30
2. Altruism	.71	(.87)	.76	.64	.59	.61	.55	.10	.46	.31	.12	.35	.32	.37	.41	.30	.25
3. Social responsibility	.66	.71	(.88)	.61	.53	.67	.44	.09	.46	.17	.06	.28	.25	.32	.40	.29	.23
4. Apathy	.71	.58	.56	(.83)	.60	.71	.55	.12	.62	.13	.11	.09	.11	.14	.30	.20	.13
5. Carelessness	.50	.54	.49	.55	(.85)	.52	.56	.08	.49	.26	.18	.12	.15	.16	.35	.17	.12
6. Self-image	.68	.55	.60	.64	.47	(.81)	.47	.01	.47	.16	.04	.25	.26	.27	.46	.27	.24
7. Habit, personal pref.	.49	.49	.39	.49	.50	.42	(.79)	.31	.64	.29	.24	.25	.28	.32	.25	.18	.31
8. Availability	.04	.08	.07	.09	.06	.01	.24	(.59)	.53	.36	.46	-.11	-.06	.05	.20	.26	.23
9. Achievement drive	.40	.39	.39	.53	.42	.40	.54	.45	(.72)	.45	.35	.00	.10	.31	.38	.25	.20
10. Self-efficacy	.15	.26	.14	.11	.22	.13	.24	.30	.38	(.70)	.47	.17	.24	.36	.30	.24	.23
11. Lack of knowledge	.03	.10	.05	.09	.15	.03	.20	.39	.30	.40	(.72)	-.02	.00	.11	.20	.15	.08
12. Health reasons	.23	.31	.25	.08	.11	.22	.22	-.10	.00	.15	-.02	(.80)	.91	.59	.16	.14	.31
13. Safety reasons	.18	.28	.22	.10	.13	.23	.25	-.05	.09	.21	.00	.81	(.79)	.63	.18	.10	.25
14. Financial/cost cons.	.24	.34	.29	.13	.15	.25	.29	.05	.28	.33	.10	.54	.57	(.83)	.31	.30	.30
15. Public relations	.36	.38	.37	.28	.32	.42	.23	.18	.35	.28	.18	.15	.17	.29	(.85)	.75	.39
16. Cultural norms	.25	.28	.27	.19	.16	.25	.17	.24	.23	.22	.14	.13	.09	.28	.70	(.86)	.38
17. Requirement	.25	.21	.19	.11	.10	.20	.26	.19	.17	.19	.07	.26	.21	.25	.33	.32	(.71)

Note. N = 245 to 310. Observed correlations are below the diagonal. Reliabilities are on the diagonal. Correlations corrected for unreliability in measurement of motives is above the diagonal.

Table 35

Study 3: Interrelations between Homogenous Item Clusters in the Environmental Sustainability Motives Scale: ***Ungreen Behavior Commission***

Homogenous item cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Environmental benefit	(.86)	.90	.84	.87	.65	.86	.08	.13	.19	.40	.09	.18	.37	.26	.55	.43	.22
2. Altruism	.76	(.83)	.86	.76	.65	.76	-.02	.11	.29	.34	.17	.22	.50	.34	.58	.51	.33
3. Social responsibility	.73	.73	(.87)	.79	.67	.82	.00	.18	.27	.36	.18	.19	.49	.23	.63	.50	.28
4. Apathy	.66	.57	.60	(.67)	.92	.92	.10	.36	.17	.68	.01	.04	.17	.19	.57	.57	.39
5. Carelessness	.47	.46	.49	.59	(.61)	.68	-.02	.35	.27	.51	.06	.02	.23	.11	.54	.48	.54
6. Self-image	.68	.59	.65	.64	.45	(.72)	.08	.12	.16	.47	.16	.17	.40	.35	.77	.56	.27
7. Availability	.05	-.01	.00	.06	-.01	.05	(.51)	.74	.50	.51	-.07	-.08	.23	-.12	.03	.05	.16
8. Achievement drive	.09	.08	.13	.23	.21	.08	.41	(.60)	.50	.75	.00	-.08	.26	-.02	.19	.23	.30
9. Self-efficacy	.13	.19	.18	.10	.15	.10	.26	.28	(.52)	.23	.41	.40	.51	.63	.45	.49	.76
10. Habit/personal pref.	.29	.24	.26	.43	.31	.31	.28	.45	.13	(.60)	.08	.09	.21	-.02	.36	.23	.37
11. Health reasons	.07	.13	.14	.01	.04	.11	-.04	.00	.24	.05	(.67)	1.12	.51	.82	.29	.42	.21
12. Safety reasons	.14	.17	.15	.03	.01	.12	-.05	-.05	.24	.06	.76	(.69)	.50	.76	.25	.33	.16
13. Financial/cost consid.	.27	.36	.36	.11	.14	.27	.13	.16	.29	.13	.33	.33	(.62)	.60	.60	.56	.27
14. Requirement	.17	.22	.15	.11	.06	.21	-.06	-.01	.32	-.01	.47	.44	.33	(.49)	.53	.68	.49
15. Public relations	.42	.44	.49	.39	.35	.54	.02	.12	.27	.23	.20	.17	.39	.31	(.69)	1.05	.49
16. Cultural norms	.32	.37	.37	.37	.30	.38	.03	.14	.28	.14	.27	.22	.35	.38	.69	(.63)	.64
17. Lack of knowledge	.14	.21	.18	.22	.29	.16	.08	.16	.38	.20	.12	.09	.15	.24	.28	.35	(.48)

Note. N = 245 to 310. Observed correlations are below the diagonal. Reliabilities are on the diagonal. Correlations corrected for unreliability in measurement of motives is above the diagonal.

Table 36

Study 3: Interrelations between Homogenous Item Clusters in the Environmental Sustainability Motives Scale: ***Ungreen Behavior Avoidance***

Homogenous item cluster	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Environmental benefits	(.87)	.67	.74	.28	.53	.65	.71	.62	.58	.19	.28	.41	.45	.54	.18
2. Altruism	.57	(.84)	.86	.28	.35	.48	.48	.45	.71	.44	.48	.50	.57	.63	.33
3. Social responsibility	.64	.73	(.85)	.26	.34	.48	.56	.46	.65	.41	.44	.45	.50	.60	.30
4. Availability	.23	.22	.21	(.76)	.30	.47	.64	.49	.44	.26	.26	.32	.28	.32	.51
5. Achievement drive	.45	.29	.29	.24	(.84)	.75	.68	.78	.26	.27	.33	.27	.36	.36	.01
6. Self-efficacy	.53	.39	.39	.36	.60	(.77)	.83	.83	.49	.28	.27	.37	.40	.43	.30
7. Lack of knowledge	.57	.38	.45	.48	.54	.63	(.75)	.87	.52	.13	.26	.34	.42	.40	.38
8. Habit, personal pref.	.50	.36	.37	.37	.62	.63	.65	(.75)	.36	.14	.27	.26	.34	.40	.21
9. Health reasons	.47	.56	.52	.33	.21	.37	.39	.27	(.75)	.69	.65	.57	.65	.54	.53
10. Safety reasons	.16	.36	.34	.20	.22	.22	.10	.11	.53	(.79)	.55	.53	.52	.44	.47
11. Financial/cost consid.	.23	.39	.36	.20	.27	.21	.20	.21	.50	.44	(.80)	.45	.46	.53	.43
12. Public relations	.37	.44	.40	.27	.24	.31	.28	.22	.47	.45	.39	(.92)	.74	.76	.63
13. Cultural norms	.39	.49	.43	.23	.31	.33	.34	.28	.53	.43	.39	.67	(.88)	.58	.54
14. Self-image	.49	.56	.54	.27	.32	.37	.34	.34	.45	.38	.46	.71	.53	(.94)	.46
15. Requirement	.14	.25	.23	.37	.01	.22	.27	.15	.38	.35	.32	.50	.42	.37	(.69)

Note. N = 220 to 329. Observed correlations are below the diagonal. Reliabilities are on the diagonal. Correlations corrected for unreliability in measurement of motives is above the diagonal.

Table 37

Study 3: Reliability, Mean Scores, and Average Inter-Item Correlations for the Environmental Sustainability Motives Scale Long and Short Form

Scale	Stratified Alpha	# of Items	*M* (*SD*)	Average Inter-Item Correlation
Green Behavior Performance				
ESMS Long Form	.97	45	120.09 (65.45)	
Prosocial Motives	.97	9	27.51 (15.97)	.78
Enabling Capabilities	.98	15	46.46 (24.78)	.77
Extrinsic Motives	.93	9	19.70 (12.98)	.47
Image Motives	.97	12	27.10 (17.80)	.73
ESMS Short Form	.88[a]	15	42.23 (21.39)	
Green Behavior Omission				
ESMS Long Form	.96	52	102.92 (54.57)	
Prosocial	.96	21	37.03 (24.74)	.53
Enabling Capabilities	.91	13	32.97 (17.48)	.44
Extrinsic	.89	9	14.01 (9.63)	.47
Image	.90	9	19.80 (12.18)	.50
ESMS Short Form	.86 [a]	17	34.28 (17.68)	
Ungreen Behavior Commission				
ESMS Long Form	.91	51	99.43 (48.74)	
Prosocial	.94	20	32.11 (19.72)	.44
Enabling Capabilities	.89	10	27.54 (13.54)	.45
Extrinsic	.85	12	19.83 (12.76)	.32
Image	.84	9	20.07 (10.67)	.37
ESMS Short Form	.69 [a]	17	34.57 (17.53)	
Ungreen Behavior Avoidance				
ESMS Long Form	.96	45	90.67 (58.03)	
Prosocial	.92	9	22.68 (14.15)	.56

Enabling Capabilities	.96	15	38.79 (21.11)	.62
Extrinsic	.86	9	14.47 (10.15)	.41
Image	.94	12	21.92 (14.43)	.57
ESMS Short Form	.85 [a]	15	33.90 (20.65)	

Note. [a] Standard coefficient alpha reported. *M* = Mean overall scale score across participants.

Table 38

Study 3: Observed Interrelations between Environmental Sustainability Motives Scale Long Form Subscales and Short Form: ***Green Behavior Performance***

Scale	1	2	3	4	5	6
1. Prosocial	(.97)	.86	.79	.75	.94	.95
2. Enabling Capabilities	.84	(.98)	.73	.78	.96	.95
3. Extrinsic	.75	.70	(.93)	.82	.92	.91
4. Image	.73	.76	.78	(.97)	.93	.91
5. ESMS Long Form	.91	.94	.87	.90	(.97)	
6. ESMS Short Form	.88	.88	.82	.84	.95	(.88)

Note. *N* = 303 to 338. ESMS = Environmental Sustainability Motives Scale. Observed correlations are below the diagonal; correlations corrected for unreliability of the scales are above the diagonal. Stratified alphas of the ESMS-LF scales are on the diagonal (standard coefficient alpha for ESMS-SF).

Table 39

Study 3: Observed Interrelations between Environmental Sustainability Motives Scale Long Form Subscales and Short Form: ***Green Behavior Omission***

Scale	1	2	3	4	5	6
1. Prosocial	(.96)	.79	.51	.63	.96	.98
2. Enabling Capabilities	.74	(.91)	.57	.65	.95	.96
3. Extrinsic	.47	.51	(.89)	.46	.71	.67
4. Image	.59	.59	.41	(.90)	.82	.84
5. ESMS Long Form	.92	.89	.66	.76	(.96)	1.06
6. ESMS Short Form	.89	.85	.59	.74	.96	(.86)

Note. *N* = 297 to 319. ESMS = Environmental Sustainability Motives Scale. Observed correlations are below the diagonal; correlations corrected for unreliability of the scales are above the diagonal. Stratified alphas of the ESMS-LF scales are on the diagonal (standard coefficient alpha for ESMS-SF).

Table 40

Study 3: Observed Interrelations between Environmental Sustainability Motives Scale Long Form Subscales and Short Form:

Ungreen Behavior Commission

Scale	1	2	3	4	5	6
1. Prosocial	(.94)	.72	.68	.80	.97	1.02
2. Enabling Capabilities	.66	(.89)	.63	.79	.93	1.12
3. Extrinsic	.61	.55	(.85)	.76	.91	.98
4. Image	.71	.68	.64	(.84)	1.00	1.04
5. ESMS Long Form	.90	.84	.80	.87	(.91)	1.20
6. ESMS Short Form	.82	.88	.75	.79	.95	(.69)

Note. *N* = 315 to 317. ESMS = Environmental Sustainability Motives Scale. Observed correlations are below the diagonal; correlations corrected for unreliability of the scales are above the diagonal. Stratified alphas of the ESMS-LF scales are on the diagonal (standard coefficient alpha for ESMS-SF).

Table 41

Study 3: Observed Interrelations between Environmental Sustainability Motives Scale Long Form Subscales and Short Form:

Ungreen Behavior Avoidance

Scale	1	2	3	4	5	6
1. Prosocial	(.92)	.79	.85	.78	.96	.98
2. Enabling Capabilities	.74	(.96)	.83	.79	.97	.93
3. Extrinsic	.76	.75	(.86)	.86	.98	.97
4. Image	.73	.75	.77	(.94)	.95	.96
5. ESMS Long Form	.90	.93	.89	.90	(.96)	1.05
6. ESMS Short Form	.87	.84	.83	.86	.95	(.85)

Note. *N* = 294 to 335. ESMS = Environmental Sustainability Motives Scale. Observed correlations are below the diagonal; correlations corrected for unreliability of the scales are above the diagonal. Stratified alphas of the ESMS-LF scales are on the diagonal (standard coefficient alpha for ESMS-SF).

Table 42

Study 3: Correlations between all Environmental Sustainability Motives Scale Factors

Motive Category Facets	1	2	3	4	5	6	7	8	9	10	11	12
Green Behavior Performance												
1. Prosocial	(.97)	.86	.79	.75	-.57	-.60	-.34	-.41	-.23	-.15	-.02	-.14
2. Enabling Capabilities	.84	(.98)	.73	.78	-.55	-.59	-.43	-.45	-.17	-.09	-.02	-.15
3. Extrinsic	.75	.70	(.93)	.82	-.40	-.46	-.12	-.32	-.10	-.13	.16	-.10
4. Image	.73	.76	.78	(.97)	-.37	-.47	-.20	-.40	-.06	-.08	.11	-.12
Green Behavior Omission												
5. Prosocial	–.55	–.53	–.38	–.36	(.96)	.79	.51	.63	.58	.22	.13	.30
6. Enabling Capabilities	–.56	–.56	–.42	–.44	.74	(.91)	.57	.65	.28	.29	.13	.29
7. Extrinsic	–.32	–.40	–.11	–.19	.47	.51	(.89)	.46	.35	.28	.51	.34
8. Image	–.38	–.42	–.29	–.37	.59	.59	.41	(.90)	.36	.20	.25	.55
Ungreen Behavior Commission												
9. Prosocial	–.22	–.16	–.09	–.06	. 55	.26	.32	.33	(.94)	.72	.68	.80
10. Enabling Capabilities	–.14	–.08	–.12	–.07	.20	.26	.25	.18	.66	(.89)	.63	.79
11. Extrinsic	–.02	–.02	.14	.10	.12	.11	.44	.22	.61	.55	(.85)	.76
12. Image	–.13	–.14	–.09	–.11	.27	.25	.29	.48	.71	.68	.64	(.84)
Ungreen Behavior Avoidance												
13. Prosocial	. 62	.52	.44	.43	–.39	–.36	–.19	–.30	–.43	–.29	–.37	–.29
14. Enabling Capabilities	.40	.46	.39	.38	–.19	–.21	–.19	–.21	–.49	–.49	–.48	–.47
15. Extrinsic	.50	.49	.58	.50	–.25	–.29	–.05	–.23	–.40	–.41	–.29	–.37
16. Image	.47	.46	.51	.63	–.24	–.31	–.07	–.27	–.29	–.20	–.28	–.29

(continued on next page)

Motive Category Facets	13	14	15	16
Green Behavior Performance				
1. Prosocial	.66	.41	.55	.49
2. Enabling Capabilities	.55	.47	.53	.48
3. Extrinsic	.48	.41	.65	.55
4. Image	.46	.39	.55	.66
Green Behavior Omission				
5. Prosocial	-.41	-.20	-.28	-.25
6. Enabling Capabilities	-.39	-.22	-.33	-.34
7. Extrinsic	-.21	-.21	-.06	-.08
8. Image	-.33	-.23	-.26	-.29
Ungreen Behavior Commission				
9. Prosocial	-.46	-.52	-.44	-.31
10. Enabling Capabilities	-.32	-.53	-.47	-.22
11. Extrinsic	-.42	-.53	-.34	-.31
12. Image	-.33	-.52	-.44	-.33
Ungreen Behavior Avoidance				
13. Prosocial	(.92)	.79	.85	.78
14. Enabling Capabilities	.74	(.96)	.83	.79
15. Extrinsic	.76	.75	(.86)	.86
16. Image	.73	.75	.77	(.94)

Note. n = 294 to 338 for observed correlations. Observed correlations are below the diagonal. Reliabilities of the motive factor subscales are on the diagonal. Correlations corrected for unreliability of the scales are above the diagonal. Convergent validities are outlined. Marked correlations indicate convergent validities for each motive factor (by color). Green isProsocial, blue is Enabling Capabilities, red is Extrinsic, and purple is Image.

Table 43

Study 3: Means and Standard Deviations of the Initial Item Pool: Motives for ***Green Behavior Performance***

Factors and Homogenous item clusters	*M*	*SD*	90% CI
Prosocial	4.23	1.32	4.11, 4.35
Environmental benefit	4.79	1.42	4.66, 4.92
Altruism	4.08	1.45	3.95, 4.21
Social responsibility	3.83	1.55	3.69, 3.96
Enabling Capabilities	4.91	1.00	4.82, 5.00
Lack of knowledge	5.05	1.08	4.95, 5.14
Lack of self-efficacy	4.93	1.18	4.82, 5.03
Lack of achievement drive	4.90	1.18	4.79, 5.00
Habit, personal preference	4.89	1.18	4.78, 4.99
Availability	4.78	1.09	4.69, 4.88
Extrinsic Motives	3.30	1.21	3.19, 3.41
Health reasons	3.34	1.45	3.21, 3.47
Financial/cost considerations	3.28	1.32	3.17, 3.40
Safety reasons	3.28	1.38	3.15, 3.40
Image Motives	3.43	1.22	3.32, 3.54
Cultural norms	3.68	1.46	3.55, 3.81
Self-image	3.42	1.52	3.29, 3.56
Requirement	3.35	1.49	3.22, 3.49
Public relations	3.27	1.53	3.13, 3.41

Note. $N = 341$. 90% CI = 90% confidence interval of the mean.

Table 44

Study 3: Means and Standard Deviations of the Initial Item Pool: Motives for ***Green Behavior Omission***

Factors and Homogenous item clusters	*M*	*SD*	90% CI
Prosocial	2.57	1.08	2.47, 2.67
Habit, personal preference	3.33	1.44	3.20, 3.47
Carelessness	3.06	1.45	2.93, 3.19
Apathy	2.69	1.46	2.56, 2.83
Social responsibility	2.23	1.16	2.13, 2.34
Environmental benefit	2.13	1.17	2.02, 2.24
Altruism	2.02	1.04	1.93, 2.12
Habit, personal preference	3.33	1.44	3.20, 3.47
Enabling Capabilities	3.89	1.09	3.79, 3.99
Availability	4.50	1.29	4.38, 4.62
Lack of knowledge	4.09	1.39	3.97, 4.22
Lack of achievement drive	3.78	1.43	3.65, 3.91
Lack of self-efficacy	3.19	1.34	3.07, 3.31
Extrinsic Motives	2.24	1.09	2.14, 2.34
Cultural norms	3.20	1.51	3.06, 3.34
Public relations	2.96	1.48	2.83, 3.10
Financial/cost considerations	2.45	1.26	2.33, 2.56
Image Motives	3.03	1.24	2.92, 3.14
Requirement	2.93	1.42	2.80, 3.06
Self-image	2.50	1.29	2.38, 2.61
Safety reasons	2.18	1.20	2.07, 2.29
Health reasons	2.09	1.15	1.98, 2.19

Note. N = 324. 90% CI = 90% confidence interval of the mean.

Table 45

Study 3: Means and Standard Deviations of the Initial Item Pool: Motives for ***Ungreen Behavior Commission***

Factors and Homogenous item clusters	*M*	*SD*	90% CI
Prosocial	2.46	1.09	2.36, 2.55
Carelessness	3.15	1.49	3.01, 3.29
Apathy	2.78	1.49	2.64, 2.92
Self-image	2.51	1.38	2.39, 2.64
Social responsibility	2.23	1.26	2.11, 2.34
Environmental benefit	2.08	1.21	1.97, 2.19
Altruism	1.98	1.10	1.88, 2.08
Enabling Capabilities	4.09	1.12	4.41, 4.68
Availability	4.55	1.46	4.41, 4.68
Lack of achievement drive	4.49	1.51	4.35, 4.62
Habit/personal preference	4.11	1.51	3.97, 4.25
Lack of self-efficacy	3.21	1.55	3.06, 3.35
Extrinsic Motives	2.79	1.13	3.04, 3.35
Requirement	3.20	1.65	3.04, 3.35
Safety reasons	2.85	1.51	2.71, 2.99
Financial/cost considerations	2.61	1.43	2.47, 2.74
Health reasons	2.53	1.43	2.40, 2.66
Image Motives	3.19	1.19	3.09, 3.30
Lack of knowledge	3.73	1.52	3.59, 3.87
Cultural norms	3.03	1.48	2.89, 3.16
Public relations	2.82	1.50	2.69, 2.96

Note. N = 320. 90% CI = 90% confidence interval of the mean.

Table 46

Study 3: Means and Standard Deviations of the Initial Item Pool: Motives for ***Ungreen Behavior Avoidance***

Factors and Homogenous item clusters	*M*	*SD*	90% CI
Prosocial	3.97	1.49	3.84, 4.11
Environmental benefit	4.54	1.67	4.39, 4.69
Altruism	3.75	1.63	3.60, 3.90
Social responsibility	3.62	1.70	3.47, 3.78
Enabling Capabilities	4.58	1.19	4.48, 4.69
Lack of achievement drive	4.78	1.37	4.65, 4.90
Habit, personal preference	4.76	1.50	4.63, 4.90
Availability	4.57	1.43	4.44, 4.70
Knowledge	4.42	1.52	4.28, 4.56
Self-efficacy	4.39	1.54	4.25, 4.52
Extrinsic Motives	3.11	1.37	2.99, 3.23
Health reasons	3.19	1.58	3.05, 3.33
Safety reasons	3.09	1.60	2.94, 3.23
Financial/cost considerations	3.05	1.54	2.91, 3.19
Image Motives	3.10	1.29	2.98, 3.21
Cultural norms	3.38	1.60	3.24, 3.53
Self-image	3.25	1.64	3.11, 3.40
Public relations	3.00	1.64	2.86, 3.15
Requirement	2.75	1.46	2.61, 2.88

Note. N = 335. 90% CI = 90% confidence interval of the mean.

Table 47

Study 3: Gender Differences in Environmental Sustainability Motives by Motive Factor

Scale/Subscale	N_m	N_f	M_m	M_f	SD_m	SD_f	SD_{ratio}	d	$d_{corrected}$	90% CI		
Green Behavior Performance												
Overall - Long Form	113	226	104.95	127.67	60.10	66.82	1.11	.35	.36	.16	-	.54
Prosocial	112	226	23.63	29.44	15.15	16.04	1.06	.37	.37	.18	-	.56
Enabling Capabilities	113	225	39.19	50.11	22.42	25.15	1.12	.45	.45	.26	-	.64
Extrinsic	111	220	17.53	20.80	11.89	13.39	1.13	.25	.26	.06	-	.45
Image	113	226	25.12	28.09	16.70	18.28	1.09	.17	.17	–.02	-	.36
Overall - Short Form	113	228	36.83	44.91	19.63	21.76	1.11	.38	.41	.19	-	.57
Green Behavior Omission												
Overall - Long Form	107	210	108.86	99.90	57.27	53.02	0.93	–.16	–.17	–.36	-	.03
Prosocial	107	210	41.38	34.82	26.44	23.59	0.89	–.27	–.27	–.46	-	–.07
Enabling Capabilities	107	210	33.69	32.60	17.89	17.30	0.97	–.06	–.07	–.26	-	.13
Extrinsic	99	198	15.22	13.40	10.29	9.24	0.90	–.19	–.20	–.39	-	.01
Image	107	210	19.70	19.85	12.25	12.18	0.99	.01	.01	–.18	-	.21
Overall - Short Form	107	210	36.34	33.23	18.76	17.05	0.91	–.18	–.19	–.37	-	.02
Ungreen Behavioral Commission												
Overall - Long Form	108	209	100.17	99.04	50.74	47.79	0.94	–.02	–.02	–.22	-	.17
Prosocial	108	209	34.51	30.87	21.35	18.75	0.88	–.18	–.19	–.38	-	.01
Enabling Capabilities	108	209	27.15	27.74	12.98	13.84	1.07	.04	.05	–.15	-	.24
Extrinsic	108	209	19.28	20.11	12.64	12.84	1.02	.07	.07	–.13	-	.26
Image	107	208	19.41	20.41	11.05	10.48	0.95	.09	.10	–.10	-	.29
Overall - Short Form	108	209	34.40	34.66	17.12	17.79	1.04	.01	.02	–.18	-	.21
Ungreen Behavior Avoidance												
Overall - Long Form	108	227	87.06	92.39	46.46	62.82	1.35	.09	.09	–.10	-	.28
Prosocial	107	226	21.08	23.44	12.15	14.97	1.23	.17	.17	–.03	-	.36
Enabling Capabilities	98	198	36.12	40.12	16.88	22.84	1.35	.19	.20	–.01	-	.39

Extrinsic	108	227	13.42	14.98	8.04	11.00	1.37	.15	.16	–.04	-	.35
Image	98	198	22.01	21.88	11.72	15.63	1.33	–.01	–.01	–.21	-	.19
Overall - Short Form	108	227	32.51	34.57	16.95	22.20	1.31	.10	.10	–.09	-	.29

Note. N_m = Number of males, N_f = number of females. SD_{ratio} = ratio of SD of females to the SD of males. Positive *d* values indicate that women scored higher than men on average. 90% CI = Confidence interval (two-tailed) around observed *d* values.

Table 48

Study 3: Gender Differences in Environmental Sustainability Motives by Homogeneous Item Cluster: ***Green Behavior Performance***

	Motive	N_m	N_f	M_m	M_f	SD_m	SD_f	SD_{ratio}	d	$d_{corrected}$	90% CI
Prosocial	Environmental benefit	108	222	10.23	12.50	5.53	5.52	1.00	.41	.45	.22 - .61
Prosocial	Altruism	94	200	8.89	10.37	5.58	5.54	.99	.27	.29	.06 - .47
Prosocial	Social responsibility	100	205	7.05	8.80	5.10	5.43	1.06	.33	.35	.13 - .53
Enabling Capabilities	Availability	105	220	9.87	11.48	4.66	4.81	1.03	.34	.39	.14 - .54
Enabling Capabilities	Lack of achievement drive	105	216	8.81	10.98	4.75	5.22	1.10	.43	.48	.23 - .63
Enabling Capabilities	Lack of self-efficacy	94	199	8.35	10.40	4.70	5.47	1.16	.39	.42	.18 - .60
Enabling Capabilities	Lack of knowledge	85	178	8.79	10.67	4.68	5.34	1.14	.37	.40	.15 - .59
Enabling Capabilities	Habit, personal preference	102	207	9.18	11.63	5.22	5.29	1.01	.47	.53	.26 - .67
Extrinsic	Health reasons	108	213	6.66	7.56	4.50	5.03	1.12	.19	.20	–.01 - .38
Extrinsic	Safety reasons	104	213	6.62	7.42	4.70	4.87	1.03	.17	.18	–.03 - .36
Extrinsic	Financial/cost considerations	92	185	5.86	7.49	3.86	4.62	1.20	.37	.41	.16 - .58
Image	Public relations	99	204	7.04	7.66	4.72	4.92	1.04	.13	.13	–.07 - .33
Image	Cultural norms	108	218	7.29	8.47	4.78	5.36	1.12	.23	.25	.04 - .42
Image	Requirement	100	198	6.85	6.99	4.27	4.64	1.09	.03	.03	–.17 - .23
Image	Self-image	102	204	6.56	7.62	4.85	4.83	1.00	.22	.23	.02 - .42

Note. N_m = Number of males, N_f = number of females. SD_{ratio} = ratio of SD of females to the SD of males. Positive d values indicate that women scored higher than men on average. 90% CI = Confidence interval (two-tailed) around observed d values.

Table 49

Study 3: Gender Differences in Environmental Sustainability Motives by Homogeneous Item Cluster: ***Green Behavior Omission***

	Motive	N_m	N_f	M_m	M_f	SD_m	SD_f	SD_{ratio}	d	$d_{corrected}$	90% CI
Prosocial	Environmental benefit	100	188	5.21	4.24	4.08	3.36	.82	–.27	–.28	–.47 - –.06
	Altruism	104	203	5.26	4.35	3.79	2.99	.79	–.28	–.30	–.48 - –.08
	Social responsibility	104	206	5.63	4.75	4.12	3.35	.81	–.24	–.26	–.44 - –.04
	Apathy	99	191	7.08	5.61	5.11	4.56	.89	–.31	–.34	–.51 - –.10
	Carelessness	96	192	7.40	6.58	5.10	4.56	.89	–.17	–.19	–.38 - .03
	Self-image	96	192	6.33	5.44	4.44	4.25	.96	–.21	–.23	–.41 - .00
Enabling Capabilities	Habit, personal preference	100	188	7.56	6.78	4.71	4.19	.89	–.18	–.20	–.38 - .02
	Availability	102	208	14.18	13.29	6.38	5.68	.89	–.15	–.19	–.35 - .05
	Achievement drive	99	191	8.61	7.73	5.24	4.73	.90	–.18	–.21	–.38 - .03
	Self-efficacy	100	191	6.25	6.93	3.93	4.20	1.07	.16	.20	–.04 - .37
	Lack of knowledge	94	161	7.26	7.96	4.60	4.44	.97	.16	.18	–.06 - .37
Extrinsic	Health reasons	97	197	5.00	4.23	3.63	3.36	.92	–.22	–.25	–.43 - –.02
	Safety reasons	96	192	4.99	4.31	3.69	3.29	.89	–.20	–.22	–.41 - .01
	Financial/cost considerations	96	192	5.66	5.18	3.95	3.85	.97	–.12	–.14	–.33 - .08
Image	Public relations	101	206	7.19	7.17	4.51	5.11	1.13	.00	.00	–.20 - .20
	Cultural norms	104	203	7.21	7.66	5.08	4.94	.97	.09	.10	–.11 - .29
	Requirement	100	195	6.32	5.83	4.72	4.17	.89	–.11	–.13	–.32 - .09

Note. N_m = Number of males, N_f = number of females. SD_{ratio} = ratio of SD of females to the SD of males. Positive d values indicate that women scored higher than men on average. 90% CI = Confidence interval (two-tailed) around observed d values.

Table 50

Study 3: Gender Differences in Environmental Sustainability Motives by Homogeneous Item Cluster: ***Ungreen Behavior Performance***

	Motive	N_m	N_f	M_m	M_f	SD_m	SD_f	SD_{ratio}	d	$d_{corrected}$	90% CI
Prosocial	Environmental benefit	102	193	3.91	3.63	3.14	2.78	.89	–.10	–.10	–.30 - .11
	Altruism	107	208	4.75	3.93	3.25	2.71	.83	–.28	–.31	–.48 - –.09
	Social responsibility	107	208	5.16	4.37	3.83	2.87	.75	–.25	–.26	–.44 - –.05
	Apathy	108	209	7.56	6.47	4.93	4.73	.96	–.23	–.28	–.42 - –.03
	Carelessness	108	209	7.81	7.64	4.94	4.97	1.01	–.04	–.05	–.23 - .16
	Self-image	107	208	5.68	5.18	3.88	3.33	.86	–.14	–.17	–.34 - .05
Enabling Capabilities	Availability	102	193	7.73	8.53	4.30	4.27	.99	.19	.26	–.01 - .39
	Achievement drive	97	194	7.59	7.27	3.61	3.46	.96	–.09	–.12	–.30 - .11
	Self-efficacy	100	185	4.49	4.84	2.92	3.04	1.04	.12	.16	–.09 - .32
	Habit/personal preference	107	208	8.96	8.87	4.35	4.91	1.13	–.02	–.03	–.22 - .18
Extrinsic	Health reasons	99	191	4.68	5.13	2.97	3.84	1.29	.13	.15	–.08 - .33
	Safety reasons	99	191	5.02	5.32	3.32	3.88	1.17	.08	.10	–.12 - .29
	Financial/cost considerations	107	208	5.57	5.37	4.11	3.36	.82	–.05	–.07	–.25 - .14
	Requirement	102	193	5.16	5.65	3.87	3.91	1.01	.13	.18	–.07 - .33
Image	Public relations	107	208	5.89	6.00	4.26	3.84	.90	.03	.03	–.17 - .22
	Cultural norms	107	208	6.53	6.53	4.32	3.96	.92	.00	.00	–.20 - .19
	Lack of knowledge	107	208	6.99	7.89	3.76	4.24	1.13	.22	.32	.02 - .42

Note. N_m = Number of males, N_f = number of females. SD_{ratio} = ratio of SD of females to the SD of males. Positive *d* values indicate that women scored higher than men on average. 90% CI = Confidence interval (two-tailed) around observed *d* values.

Table 51

Study 3: Gender Differences in Environmental Sustainability Motives by Homogeneous Item Cluster: ***Ungreen Behavior Avoidance***

	Motive	N_m	N_f	M_m	M_f	SD_m	SD_f	SD_{ratio}	d	$d_{corrected}$	90% CI
Prosocial	Environmental benefits	95	186	7.56	9.04	4.22	5.38	1.27	.30	.32	.09 - .50
Prosocial	Altruism	106	223	7.52	8.20	4.42	4.78	1.08	.15	.16	–.05 - .34
Prosocial	Social responsibility	106	223	6.99	8.01	4.20	5.17	1.23	.21	.23	.01 - .40
Enabling Capabilities	Availability	95	186	6.88	7.60	3.60	4.56	1.27	.17	.19	–.04 - .38
Enabling Capabilities	Achievement drive	82	153	6.68	8.59	3.86	4.89	1.27	.42	.46	.19 - .65
Enabling Capabilities	Self-efficacy	92	190	8.59	9.03	4.43	5.04	1.14	.09	.10	–.12 - .30
Enabling Capabilities	Lack of knowledge	95	186	7.76	8.94	4.00	5.02	1.25	.25	.29	.04 - .46
Enabling Capabilities	Habit, personal preference	96	194	8.45	9.47	3.98	4.92	1.23	.22	.26	.02 - .43
Extrinsic	Health reasons	106	223	6.16	6.76	4.02	4.39	1.09	.14	.16	–.05 - .34
Extrinsic	Safety reasons	82	153	3.93	5.19	2.73	3.80	1.39	.36	.41	.14 - .59
Extrinsic	Financial/cost considerations	104	223	4.56	4.92	3.57	4.25	1.19	.09	.10	–.10 - .29
Image	Public relations	95	186	5.72	5.83	3.75	4.84	1.29	.03	.03	–.18 - .23
Image	Cultural norms	92	190	6.18	6.11	3.10	4.53	1.46	–.02	-.02	–.23 - .19
Image	Requirement	95	186	5.19	5.02	2.80	3.48	1.24	–.05	-.06	–.26 - .16
Image	Self-image	95	186	5.81	6.19	3.52	4.72	1.34	.09	.09	–.12 - .30

Note. N_m = Number of males, N_f = number of females. SD_{ratio} = ratio of SD of females to the SD of males. Positive d values indicate that women scored higher than men on average. 90% CI = Confidence interval (two-tailed) around observed d values.

Table 52

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Factors

	Prosocial		Enabling Capabilities		Extrinsic		Image	
Personality trait	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Green Behavior Performance								
Neuroticism	–.02	–.02	.05	.06	.00	.00	.01	.01
Extraversion	.10	.11	.10	.11	.08	.09	.10	.11
Openness	.26	.28	.24	.26	.09	.10	.10	.11
Agreeableness	.24	.25	.17	.18	.09	.09	.06	.06
Conscientiousness	.06	.06	.06	.06	.02	.02	.01	.01
Green Behavior Omission								
Neuroticism	.00	.00	.06	.07	–.04	–.05	–.02	–.02
Extraversion	–.05	–.05	.02	.02	.00	.00	–.04	–.04
Openness	–.29	–.32	–.13	–.14	–.20	–.22	–.07	–.08
Agreeableness	–.34	–.37	–.13	–.14	–.18	–.20	–.16	–.18
Conscientiousness	–.03	–.03	.02	.02	–.02	–.03	.04	.04
Ungreen Behavior Commission								
Neuroticism	.01	.01	.03	.04	–.02	–.02	.01	.01
Extraversion	–.05	–.05	.13	.14	.03	.03	.04	.05
Openness	–.27	–.30	–.07	–.08	–.10	–.12	–.07	–.08
Agreeableness	–.34	–.37	–.07	–.08	–.09	–.10	–.10	–.12
Conscientiousness	–.03	–.03	.09	.10	.00	.00	–.01	–.01
Ungreen Behavior Avoidance								
Neuroticism	.00	.00	.02	.03	.04	.04	–.02	–.02
Extraversion	.04	.05	.08	.09	.06	.07	.12	.13
Openness	.16	.17	.19	.20	.12	.14	.08	.09
Agreeableness	.16	.18	.09	.10	.09	.10	.08	.08
Conscientiousness	.12	.13	.14	.15	.05	.06	.05	.05

Note. N = 296 to 345. ρ = Observed correlation coefficient corrected for unreliability in personality trait and motive factor. 90% confidence intervals for observed correlations with an absolute value of greater than .09 do not include zero.

Table 53

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Factors: ***Green Behavior Performance***

	Prosocial		Enabling Capabilities		Extrinsic		Image	
Personality trait	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism								
Anxiety	.01	.01	.07	.09	.06	.07	.03	.04
Angry Hostility	–.12	–.15	–.04	–.04	–.03	–.04	–.05	–.06
Depression	.04	.04	.09	.10	.02	.03	.04	.05
Self-Consciousness	–.03	–.03	.03	.04	–.06	–.07	–.06	–.07
Impulsiveness	–.07	–.08	–.03	–.04	–.06	–.08	–.02	–.02
Vulnerability	.07	.08	.08	.09	.07	.08	.07	.08
Extraversion								
Warmth	.16	.18	.12	.13	.11	.12	.12	.13
Gregariousness	.03	.03	.03	.03	.04	.05	.07	.08
Assertiveness	.01	.01	.04	.05	.02	.02	.06	.07
Activity	.04	.06	.09	.11	.06	.08	.07	.09
Excitement-Seeking	.08	.09	.09	.12	.07	.09	.08	.10
Positive Emotions	.11	.13	.08	.10	.07	.08	.04	.04
Openness								
Fantasy	.14	.16	.13	.15	.05	.06	.03	.04
Aesthetics	.29	.33	.27	.30	.19	.23	.18	.20
Feelings	.25	.30	.26	.31	.12	.14	.10	.12
Actions	.16	.21	.15	.19	.07	.09	.07	.08
Ideas	.09	.10	.09	.10	–.03	–.04	.03	.04
Values	.06	.08	.04	.05	–.09	–.11	–.05	–.06
Agreeableness								
Trust	.17	.19	.12	.13	.10	.11	.11	.13
Straightforwardness	.16	.19	.10	.12	.01	.01	–.07	–.09
Altruism	.25	.29	.19	.22	.14	.17	.14	.16
Compliance	.13	.16	.05	.06	.01	.02	.01	.01
Modesty	.09	.11	.07	.08	.04	.05	–.04	–.04
Tender-Mindedness	.22	.29	.21	.27	.06	.09	.11	.15
Conscientiousness								
Competence	.04	.05	.03	.04	.01	.01	–.04	–.05
Order	.00	–.01	.05	.06	.00	.00	.02	.02
Dutifulness	.07	.09	.09	.11	.05	.06	.07	.08
Achievement	.07	.09	.05	.06	.00	.00	.04	.04
Self-Discipline	.04	.04	.00	.01	.04	.05	.02	.02
Deliberation	.05	.06	.05	.06	–.02	–.02	–.04	–.05

Note. N = 331 to 341. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 54

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Factors: ***Green Behavior Omission***

	Prosocial		Enabling Capabilities		Extrinsic		Image	
Personality trait	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism								
Anxiety	.02	.03	.10	.12	–.05	–.07	.00	.00
Angry Hostility	.07	.08	.06	.07	.06	.08	.11	.13
Depression	–.06	–.06	–.01	–.01	–.07	–.08	–.05	–.06
Self-Consciousness	–.01	–.02	.05	.06	–.07	–.09	–.03	–.03
Impulsiveness	.08	.10	.11	.14	.02	.02	.04	.04
Vulnerability	–.09	–.11	–.03	–.03	–.05	–.06	–.13	–.16
Extraversion								
Warmth	–.14	–.16	–.01	–.02	–.09	–.10	–.14	–.16
Gregariousness	.04	.04	.05	.06	.06	.07	.00	.00
Assertiveness	.09	.10	.01	.01	.06	.07	.06	.07
Activity	–.01	–.01	.06	.08	.02	.02	.00	.00
Excitement-Seeking	–.05	–.07	.03	.04	.03	.03	.00	.00
Positive Emotions	–.13	–.15	–.05	–.06	–.07	–.08	–.09	–.10
Openness								
Fantasy	–.16	–.19	–.08	–.10	–.09	–.12	–.02	–.03
Aesthetics	–.28	–.32	–.13	–.14	–.19	–.22	–.12	–.14
Feelings	–.23	–.27	–.08	–.09	–.20	–.25	–.08	–.09
Actions	–.24	–.32	–.17	–.21	–.08	–.11	–.04	–.05
Ideas	–.11	–.13	–.06	–.07	–.08	–.09	–.02	–.03
Values	–.13	–.16	.01	.01	–.13	–.17	.04	.04
Agreeableness								
Trust	–.23	–.26	–.08	–.09	–.06	–.06	–.16	–.18
Straightforwardness	–.25	–.30	–.12	–.15	–.19	–.23	–.06	–.08
Altruism	–.26	–.30	–.07	–.08	–.14	–.16	–.13	–.15
Compliance	–.18	–.23	–.12	–.15	–.19	–.24	–.12	–.15
Modesty	–.25	–.28	–.04	–.05	–.03	–.04	–.10	–.12
Tender-Mindedness	–.29	–.38	–.11	–.14	–.22	–.29	–.09	–.12
Conscientiousness								
Competence	–.02	–.02	.02	.02	.01	.02	.08	.10
Order	.02	.02	.05	.06	–.01	–.01	–.01	–.02
Dutifulness	–.04	–.06	.02	.02	–.07	–.09	.01	.01
Achievement	–.06	–.07	.02	.02	.03	.03	.06	.08
Self-Discipline	.00	.00	.00	.00	.03	.04	.04	.04
Deliberation	–.06	–.07	.00	.00	–.11	–.13	.01	.01

Note. N = 297 to 317. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 55

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Factors: ***Ungreen Behavior Commission***

	Prosocial		Enabling Capabilities		Extrinsic		Image	
Personality trait	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism								
Anxiety	–.03	–.04	.05	.06	–.03	–.04	–.02	–.03
Angry Hostility	.10	.12	.04	.05	.03	.03	.09	.11
Depression	.01	.02	.04	.04	.01	.01	–.01	–.01
Self-Consciousness	–.02	–.03	–.02	–.02	–.06	–.07	–.03	–.04
Impulsiveness	.05	.06	.10	.13	.03	.04	.06	.07
Vulnerability	–.07	–.08	–.08	–.10	–.04	–.05	–.05	.07
Extraversion								
Warmth	–.14	–.16	.09	.10	.00	.00	–.02	–.02
Gregariousness	.02	.02	.13	.14	.06	.06	.06	.07
Assertiveness	.11	.13	.12	.14	.06	.07	.07	.08
Activity	.02	.02	.11	.15	.03	.04	.04	.06
Excitement-Seeking	–.07	–.09	.05	.07	–.02	–.03	.02	.03
Positive Emotions	–.15	–.17	.02	.03	–.01	–.01	.01	.01
Openness								
Fantasy	–.18	–.21	–.09	–.11	–.08	–.10	–.07	–.09
Aesthetics	–.21	–.24	–.06	–.07	–.01	–.01	–.04	–.05
Feelings	–.16	–.19	.10	.12	–.08	–.10	.01	.01
Actions	–.23	–.29	–.19	–.24	–.06	–.08	–.06	–.08
Ideas	–.16	–.18	–.07	–.08	–.11	–.13	–.12	–.14
Values	–.14	–.17	.01	.02	–.08	–.11	.03	.03
Agreeableness								
Trust	–.19	–.21	.00	.00	–.02	–.02	.00	.00
Straightforwardness	–.33	–.40	–.15	–.18	–.17	–.21	–.14	–.16
Altruism	–.28	–.33	.04	.05	–.07	–.09	–.08	–.10
Compliance	–.17	–.22	–.09	–.11	–.04	–.06	–.09	–.11
Modesty	–.25	–.28	–.07	–.07	–.03	–.03	–.08	–.09
Tender-Mindedness	–.26	–.34	–.06	–.08	–.07	–.09	–.05	–.07
Conscientiousness								
Competence	.00	.00	.12	.15	.01	.02	.04	.05
Order	.01	.01	.11	.13	.03	.04	–.03	–.04
Dutifulness	–.07	–.09	.06	.08	–.01	–.02	–.02	–.03
Achievement	–.02	–.03	.07	.08	–.01	–.01	.03	.04
Self-Discipline	.01	.02	.04	.04	.03	.03	.00	.00
Deliberation	–.08	–.10	.01	.01	–.06	–.07	–.04	–.04

Note. N = 315 to 317. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 56

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Factors: ***Ungreen Behavior Avoidance***

	Prosocial		Enabling Capabilities		Extrinsic		Image	
Personality trait	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Neuroticism								
Anxiety	.04	.05	.07	.09	.04	.05	.01	.01
Angry Hostility	–.03	–.04	–.03	–.04	.03	.03	–.08	–.10
Depression	.04	.05	.13	.14	.05	.06	.06	.07
Self-Consciousness	.04	.05	.03	.04	.03	.04	–.04	–.05
Impulsiveness	–.08	–.10	–.09	–.11	–.02	–.02	–.07	–.09
Vulnerability	–.01	–.01	–.03	–.04	.03	.03	.02	.02
Extraversion								
Warmth	.09	.10	.09	.10	.07	.08	.14	.05
Gregariousness	–.03	–.03	–.05	–.05	.01	.01	.06	.07
Assertiveness	.02	.02	.06	.07	.02	.02	.03	.03
Activity	.06	.08	.16	.21	.08	.11	.12	.16
Excitement-Seeking	.02	.02	.06	.08	.08	.10	.13	.16
Positive Emotions	.04	.04	.05	.05	.05	.06	.05	.06
Openness								
Fantasy	.02	.02	.09	.11	.04	.05	.05	.06
Aesthetics	.18	.21	.14	.17	.13	.12	.09	.07
Feelings	.18	.22	.14	.17	.10	.12	.06	.07
Actions	.12	.15	.13	.17	.11	.14	.08	.11
Ideas	.06	.07	.11	.12	.07	.08	.04	.05
Values	.05	.06	.14	.17	.01	.02	.01	.01
Agreeableness								
Trust	.08	.08	–.02	–.02	.05	.06	.06	.06
Straightforwardness	.15	.18	.07	.08	.07	.09	–.02	–.03
Altruism	.23	.28	.18	.21	.14	.17	.17	.20
Compliance	.09	.11	.01	.01	.02	.02	.03	.04
Modesty	.04	.04	.07	.07	.05	.05	.04	.04
Tender-Mindedness	.14	.18	.11	.15	.05	.07	.07	.09
Conscientiousness								
Competence	.11	.14	.10	.13	.03	.04	.02	.03
Order	.07	.08	.11	.13	.02	.02	.02	.03
Dutifulness	.12	.15	.14	.18	.09	.11	.07	.09
Achievement	.13	.16	.18	.22	.07	.09	.11	.13
Self-Discipline	.04	.05	.05	.06	.01	.01	.03	.03
Deliberation	.11	.13	.09	.10	.04	.05	–.02	–.02

Note. N = 296 to 335. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 57

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Scale Long and Short Forms: ***Green Behavior Performance***

	ESMS Long Form		ESMS Short Form	
Personality trait	*r*	ρ	*r*	ρ
Neuroticism	.02	.02	.01	.01
Anxiety	.04	.05	.04	.05
Angry Hostility	–.06	–.07	–.05	–.07
Depression	.06	.07	.05	.06
Self-Consciousness	–.02	–.03	–.02	–.02
Impulsiveness	–.04	–.05	–.06	–.08
Vulnerability	.08	.10	.08	.10
Extraversion	.11	.05	.12	.04
Warmth	.14	.15	.15	.18
Gregariousness	.05	.05	.06	.07
Assertiveness	.04	.05	.04	.05
Activity	.07	.09	.08	.11
Excitement-Seeking	.09	.11	.08	.11
Positive Emotions	.07	.09	.10	.12
Openness	.20	.22	.23	.26
Fantasy	.10	.12	.11	.14
Aesthetics	.27	.30	.27	.32
Feelings	.21	.25	.24	.31
Actions	.13	.17	.17	.23
Ideas	.07	.07	.05	.06
Values	.00	.00	.04	.06
Agreeableness	.15	.16	.15	.17
Trust	.14	.16	.15	.17
Straightforwardness	.05	.06	.05	.06
Altruism	.20	.23	.19	.23
Compliance	.05	.07	.04	.05
Modesty	.05	.05	.05	.06
Tender-Mindedness	.18	.24	.16	.23
Conscientiousness	.04	.04	.04	.04
Competence	.01	.01	.02	.02
Order	.02	.03	.01	.02
Dutifulness	.08	.10	.07	.09
Achievement	.05	.06	.07	.09
Self-Discipline	.02	.03	.00	.03
Deliberation	.02	.02	.02	.03

Note. N = 339 to 341. ESMS = Environmental Sustainability Motives Scale. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 58

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Scale Long and Short Forms: ***Green Behavior Omission***

	ESMS Long Form		ESMS Short Form	
Personality trait	*r*	ρ	*r*	ρ
Neuroticism	.01	.01	–.01	–.01
Anxiety	.03	.04	.02	.03
Angry Hostility	.09	.10	.05	.06
Depression	–.05	–.06	–.07	–.09
Self-Consciousness	–.01	–.01	.00	.00
Impulsiveness	.09	.11	.09	–.12
Vulnerability	–.09	–.11	–.11	–.13
Extraversion	–.03	.03	.00	.05
Warmth	–.12	–.13	–.10	–.12
Gregariousness	.04	.05	.07	.08
Assertiveness	.07	.08	.06	.07
Activity	.02	.02	.02	.02
Excitement-Seeking	–.01	–.01	.01	–.02
Positive Emotions	–.11	–.13	–.08	–.10
Openness	–.22	–.24	–.20	–.22
Fantasy	–.12	–.14	–.10	–.12
Aesthetics	–.23	–.26	–.19	–.23
Feelings	–.18	–.21	–.17	–.21
Actions	–.19	–.25	–.17	–.23
Ideas	–.09	–.10	–.08	–.10
Values	–.06	–.08	–.06	–.07
Agreeableness	–.26	–.28	–.23	–.26
Trust	–.18	–.20	–.14	–.16
Straightforwardness	–.20	–.24	–.18	–.23
Altruism	–.19	–.23	–.17	–.21
Compliance	–.18	–.22	–.15	–.20
Modesty	–.16	–.18	–.18	–.21
Tender-Mindedness	–.22	–.29	–.19	–.26
Conscientiousness	.00	.00	.01	.01
Competence	.02	.03	.02	.03
Order	.02	.03	.02	.03
Dutifulness	–.02	–.03	–.04	–.05
Achievement	.00	.00	.01	.01
Self-Discipline	.02	.02	.01	.01
Deliberation	–.04	–.05	–.06	–.07

Note. N = 317. ESMS = Environmental Sustainability Motives Scale. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 59

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Scale Long and Short Forms: ***Ungreen Behavior Commission***

	ESMS Long Form		ESMS Short Form	
Personality trait	*r*	ρ	*r*	ρ
Neuroticism	.01	.01	.01	.01
Anxiety	–.01	–.02	.01	.01
Angry Hostility	.08	.09	.06	.08
Depression	.02	.02	.02	.02
Self-Consciousness	–.04	–.04	–.04	–.05
Impulsiveness	.07	.09	.07	.09
Vulnerability	–.07	–.09	–.09	–.11
Extraversion	.03	.02	.07	.04
Warmth	–.03	–.04	.00	.00
Gregariousness	.07	.08	.01	.12
Assertiveness	.11	.13	.13	.15
Activity	.06	.07	.06	.08
Excitement-Seeking	–.01	–.02	.00	.00
Positive Emotions	–.05	–.06	–.03	–.03
Openness	–.17	–.19	–.15	–.17
Fantasy	–.13	–.16	–.13	–.17
Aesthetics	–.12	–.13	–.11	–.13
Feelings	–.06	–.07	–.01	–.01
Actions	–.17	–.22	–.18	–.25
Ideas	–.14	–.16	–.12	–.14
Values	–.07	–.08	–.06	–.07
Agreeableness	–.21	–.22	–.18	–.21
Trust	–.08	–.09	–.08	–.09
Straightforwardness	–.25	–.30	–.23	–.29
Altruism	–.14	–.16	–.09	–.11
Compliance	–.13	–.16	–.09	–.12
Modesty	–.14	–.16	–.14	–.17
Tender-Mindedness	–.15	–.20	–.15	–.21
Conscientiousness	.01	.01	.03	.03
Competence	.05	.06	.07	.09
Order	.03	.04	.04	.06
Dutifulness	–.02	–.02	.01	.02
Achievement	.01	.01	.02	.03
Self-Discipline	.02	.02	.02	.02
Deliberation	–.06	–.07	–.04	–.05

Note. *N* = 317. ESMS = Environmental Sustainability Motives Scale. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 60

Study 3: Correlations between Big Five Personality Traits and Environmental Sustainability Motive Scale Long and Short Forms: ***Ungreen Behavior Avoidance***

	ESMS Long Form		ESMS Short Form	
Personality trait	*r*	ρ	*r*	ρ
Neuroticism	.00	.00	.00	.00
Anxiety	.03	.03	.01	.02
Angry Hostility	–.02	–.02	.01	.01
Depression	.05	.06	.04	.05
Self-Consciousness	.02	.03	.03	.04
Impulsiveness	–.08	–.11	–.10	–.12
Vulnerability	.00	.00	.00	.01
Extraversion	.04	.02	.02	.00
Warmth	.07	.08	.06	.07
Gregariousness	–.03	–.03	–.04	–.05
Assertiveness	.02	.02	.01	.01
Activity	.07	.09	.05	.06
Excitement-Seeking	.05	.06	.04	.05
Positive Emotions	.02	.02	–.01	–.02
Openness	.15	.16	.12	.14
Fantasy	.04	.05	.02	.02
Aesthetics	.16	.18	.14	.17
Feelings	.11	.14	.01	.12
Actions	.12	.16	.12	.16
Ideas	.09	.10	.08	.09
Values	.04	.05	.03	.04
Agreeableness	.11	.12	.11	.13
Trust	.04	.04	.06	.07
Straightforwardness	.09	.10	.01	.12
Altruism	.19	.22	.18	.22
Compliance	.04	.05	.00	.01
Modesty	.04	.05	.06	.07
Tender-Mindedness	.01	.13	.11	.15
Conscientiousness	.09	.10	.01	.11
Competence	.05	.05	.06	.07
Order	.05	.05	.06	.07
Dutifulness	.11	.14	.01	.13
Achievement	.11	.13	.01	.13
Self-Discipline	.04	.04	.04	.04
Deliberation	.07	.08	.09	.11

Note. N = 335. ESMS = Environmental Sustainability Motives Scale. 90% confidence intervals for correlations with an absolute value of greater than .09 do not include zero.

Table 61

Study 3: Correlations between Employee Green Behavior, Eco-Reputation, and Environmental Sustainability Motives for ***Green Behavior Performance***

		Prosocial			Enabling Capabilities			Extrinsic			Image		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	.44	.54	.48, .60	.45	.54	.48, .61	.38	.48	.41, .55	.45	.55	.48, .61
	Reactive factor (α = .70)	.36	.43	.36, .51	.39	.47	.40, .54	.27	.33	.25, .41	.31	.38	.30, .46
Overall Scales	EGB checklist (α = .81)	.43	.49	.42, .56	.45	.51	.44, .57	.35	.41	.33, .48	.41	.46	.39, .53
	Eco-reputation (α = .82)	.47	.53	.46, .59	.42	.47	.40, .54	.36	.41	.34, .49	.34	.38	.30, .46

(continued on next page)

		ESMS Long Form			ESMS Short Form		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	.48	.59	.53, .65	.47	.60	.55, .66
	Reactive factor (α = .70)	.37	.45	.38, .53	.37	.47	.40, .54
Overall Scales	EGB checklist (α = .81)	.46	.52	.45, .59	.45	.54	.47, .60
	Eco-reputation (α = .82)	.45	.50	.43, .57	.45	.53	.47, .60

Note. *N* = 331 to 341. ρ = Correlation corrected for unreliability in both the green behavior and motives measures. EGB = Employee Green Behavior. ESMS = Environmental Sustainability Motives Scale. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Table 62

Study 3: Correlations between Employee Green Behavior, Eco-Reputation, and Environmental Sustainability Motives for ***Green Behavior Omission***

		Prosocial			Enabling Capabilities			Extrinsic			Image		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	-.32	-.38	-.46, -.30	-.39	-.48	-.55, -.40	-.21	-.26	-.35, -.17	-.33	-.41	-.48, -.33
	Reactive factor (α = .70)	-.30	-.37	-.45, -.28	-.35	-.42	-.50, -.35	-.27	-.34	-.43, -.26	-.36	-.44	-.52, -.37
Overall Scales	EGB checklist (α = .81)	-.33	-.38	-.46, -.30	-.40	-.45	-.53, -.38	-.28	-.32	-.40, -.23	-.38	-.43	-.51, -.36
	Eco-reputation (α = .82)	-.51	-.57	-.63, -.50	-.37	-.41	-.49, -.33	-.16	-.18	-.27, -.09	-.24	-.27	-.36, -.18

(continued on next page)

		ESMS Long Form			ESMS Short Form		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	-.39	-.47	-.55, -.40	-.37	-.47	-.55, -.40
	Reactive factor (α = .70)	-.39	-.47	-.54, -.40	-.37	-.47	-.54, -.40
Overall Scales	EGB checklist (α = .81)	-.42	-.48	-.55, -.41	-.40	-.48	-.55, -.41
	Eco-reputation (α = .82)	-.43	-.49	-.56, -.42	-.39	-.46	-.54, -.39

Note. *N* = 297 to 317. ρ = Correlation corrected for unreliability in both the green behavior and motives measures. EGB = Employee Green Behavior. ESMS = Environmental Sustainability Motives Scale. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Table 63

Study 3: Correlations between Employee Green Behavior, Eco-Reputation, and Environmental Sustainability Motives for ***Ungreen Behavior Commission***

		Prosocial			Enabling Capabilities			Extrinsic			Image		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	-.17	-.21	-.29, -.12	-.15	-.19	-.27, -.10	-.15	-.18	-.27, -.09	-.26	-.32	-.40, -.23
	Reactive factor (α = .70)	-.31	-.38	-.46, -.30	-.22	-.27	-.36, -.19	-.31	-.38	-.46, -.30	-.34	-.41	-.49, -.34
Overall Scales	EGB checklist (α = .81)	-.27	-.31	-.39, -.22	-.22	-.24	-.33, -.16	-.26	-.30	-.39, -.22	-.34	-.38	-.46, -.30
	Eco-reputation (α = .82)	-.30	-.34	-.42, -.26	-.13	-.14	-.23, -.05	-.02	-.03	-.12, .07	-.11	-.13	-.22, -.03

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		ESMS Long Form			ESMS Short Form		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	-.21	-.25	-.34, -.17	-.14	-.18	-.27, -.09
	Reactive factor (α = .70)	-.34	-.42	-.49, -.34	-.25	-.32	-.40, -.24
Overall Scales	EGB checklist (α = .81)	-.31	-.35	-.43, -.27	-.23	-.27	-.35, -.18
	Eco-reputation (α = .82)	-.19	-.21	-.30, -.12	-.18	-.21	-.30, -.13

Note. *N* = 315 to 317. ρ = Correlation corrected for unreliability in both the green behavior and motives measures. EGB = Employee Green Behavior. ESMS = Environmental Sustainability Motives Scale. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Table 64

Study 3: Correlations between Employee Green Behavior, Eco-Reputation, and Environmental Sustainability Motives for ***Ungreen Behavior Avoidance***

		Prosocial			Enabling Capabilities			Extrinsic			Image		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	.40	.49	.42, .56	.35	.42	.34, .50	.34	.42	.34, .49	.39	.48	.41, .55
	Reactive factor (α = .70)	.43	.52	.45, .58	.37	.45	.38, .53	.37	.46	.39, .54	.37	.45	.38, .53
Overall Scales	EGB checklist (α = .81)	.46	.52	.45, .58	.40	.45	.38, .53	.39	.45	.38, .53	.42	.47	.40, .55
	Eco-reputation (α = .82)	.34	.38	.30, .46	.23	.26	.17, .35	.27	.31	.23, .40	.25	.28	.19, .37

(continued on next page)

		ESMS Long Form			ESMS Short Form		
	Scale	*r*	ρ	90% CI	*r*	ρ	90% CI
Green Factors	Proactive factor (α = .70)	.40	.48	.41, .55	.35	.45	.38, .52
	Reactive factor (α = .70)	.44	.54	.48, .60	.41	.52	.45, .59
Overall Scales	EGB checklist (α = .81)	.47	.53	.46, .59	.42	.50	.43, .57
	Eco-reputation (α = .82)	.29	.33	.25, .41	.31	.36	.29, .44

Note. *N* = 296 to 335. ρ = Correlation corrected for unreliability in both the green behavior and motives measures. EGB = Employee Green Behavior. ESMS = Environmental Sustainability Motives Scale. CI = 90% confidence intervals (two-tailed) around corrected correlations.

Table 65

Study 3: Hierarchical Regressions for Big Five Personality Traits and Environmental Sustainability Motive Predictors of Eco-Reputation and Employee Green Behavior

Variable Set	R	Proactive Factor	Reactive Factor	Employee Green Behavior Checklist	Eco-Reputation
Green Behavior Performance					
Step 1: NEO Personality	R	.07	.13	.11	.42
	R^2	.01	.02	.01	.18
	R^2_{adj}	-.01	.00	.00	.17
Step 2: ESMS Factors	R	.50	.41	.48	.57
	R^2	.25	.17	.24	.32
	R^2_{adj}	.23	.14	.23	.30
	$\Delta R2$	.24	.15	.21	.14
Green Behavior Omission					
Step 1: NEO Personality	R	.07	.13	.11	.42
	R^2	.01	.02	.01	.18
	R^2_{adj}	-.01	.00	.00	.17
Step 2: ESMS Factors	R	.42	.43	.46	.59
	R^2	.18	.18	.21	.35
	R^2_{adj}	.15	.16	.19	.33
	$\Delta R2$	.17	.17	.20	.17
Ungreen Behavior Commission					
Step 1: NEO Personality	R	.07	.13	.11	.42

Variable Set		Proactive Factor	Reactive Factor	Employee Green Behavior Checklist	Eco-Reputation
	R	.01	.02	.01	.18
	R^2_{adj}	-.01	.00	.00	.17
Step 2: ESMS Factors	R	.27	.39	.36	.49
	R^2	.07	.15	.13	.24
	R^2_{adj}	.05	.12	.10	.21
	$\Delta R2$	.07	.13	.12	.06
Ungreen Behavior Avoidance					
Step 1: NEO Personality	R	.07	.13	.11	.42
	R^2	.01	.02	.01	.18
	R^2_{adj}	-.01	.00	.00	.17
Step 2: ESMS Factors	R	.44	.45	.48	.51
	R^2	.19	.20	.23	.26
	R^2_{adj}	.17	.18	.21	.23
	$\Delta R2$	.19	.18	.22	.08

Note. *N*s range from 296 to 345. ESMS = Environmental Sustainability Motives Scale (Long Form). The five NEO personality traits were always entered as a set in Step 1 (Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness). Step 2 included four factors from the Environmental Sustainability Motives Scale entered as a set (Prosocial, Enabling Capabilities, Extrinsic, and Image factors).

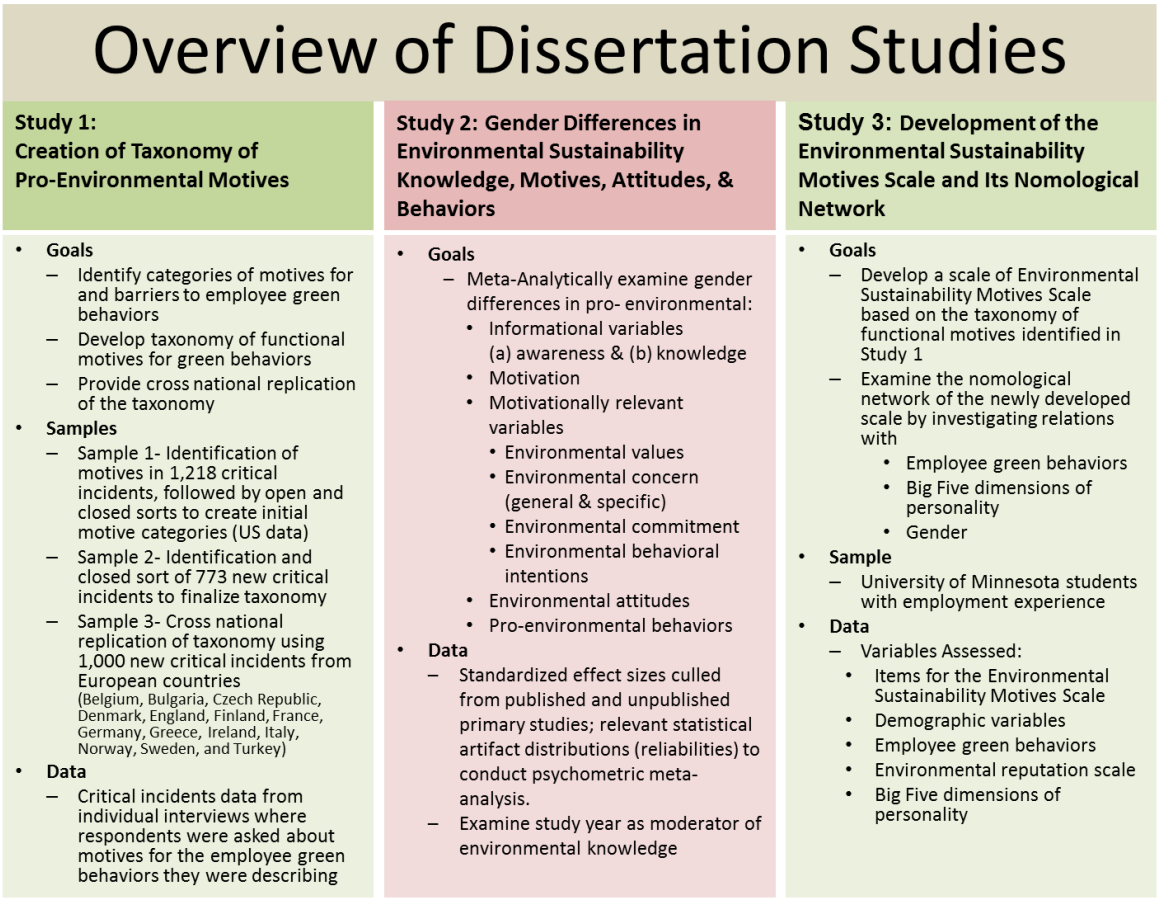

Figure 1. Overview of studies.

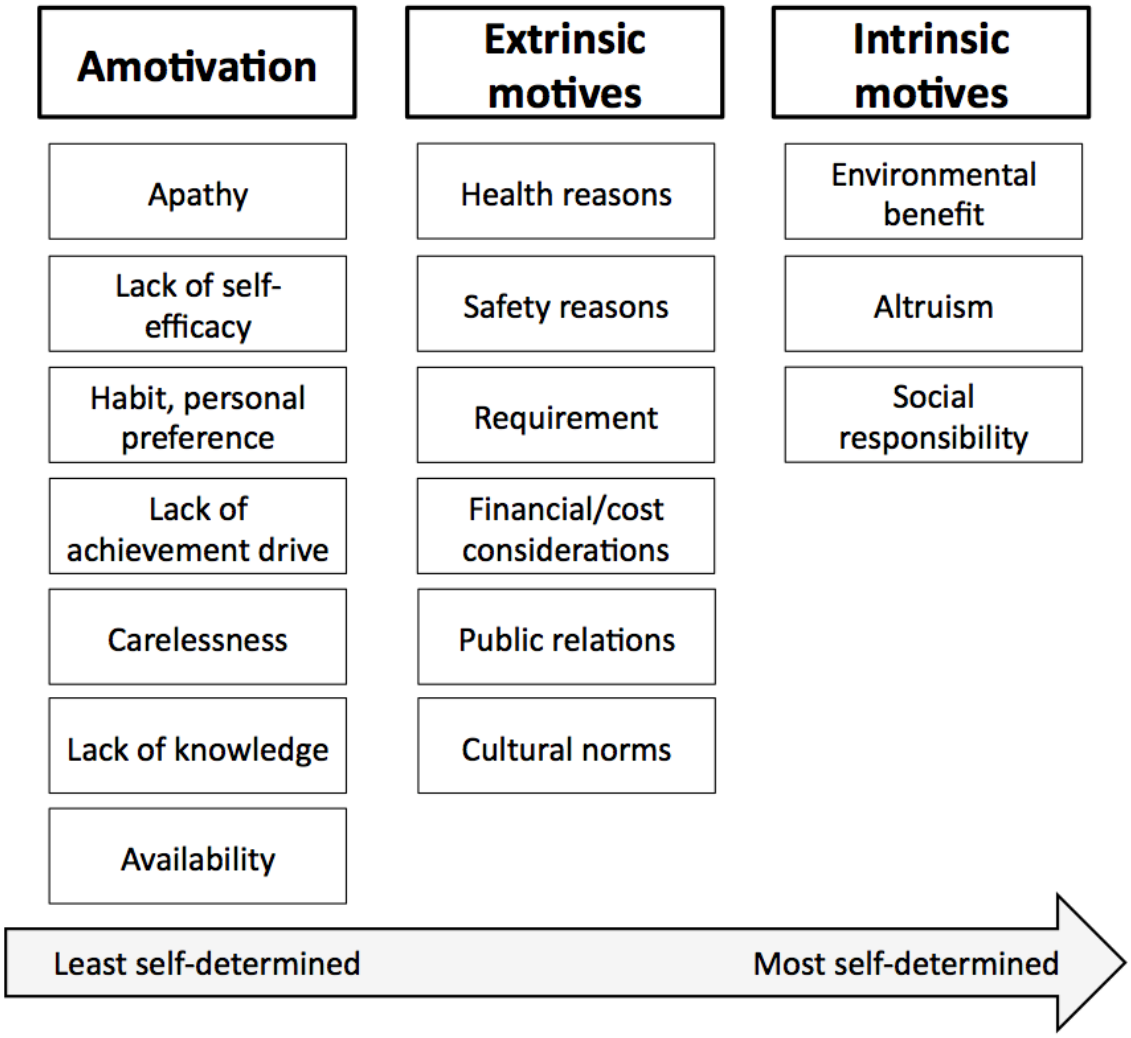

Figure 2. Motives for employee green behavior organized according to Ryan and Deci's (2000) self-determination theory.

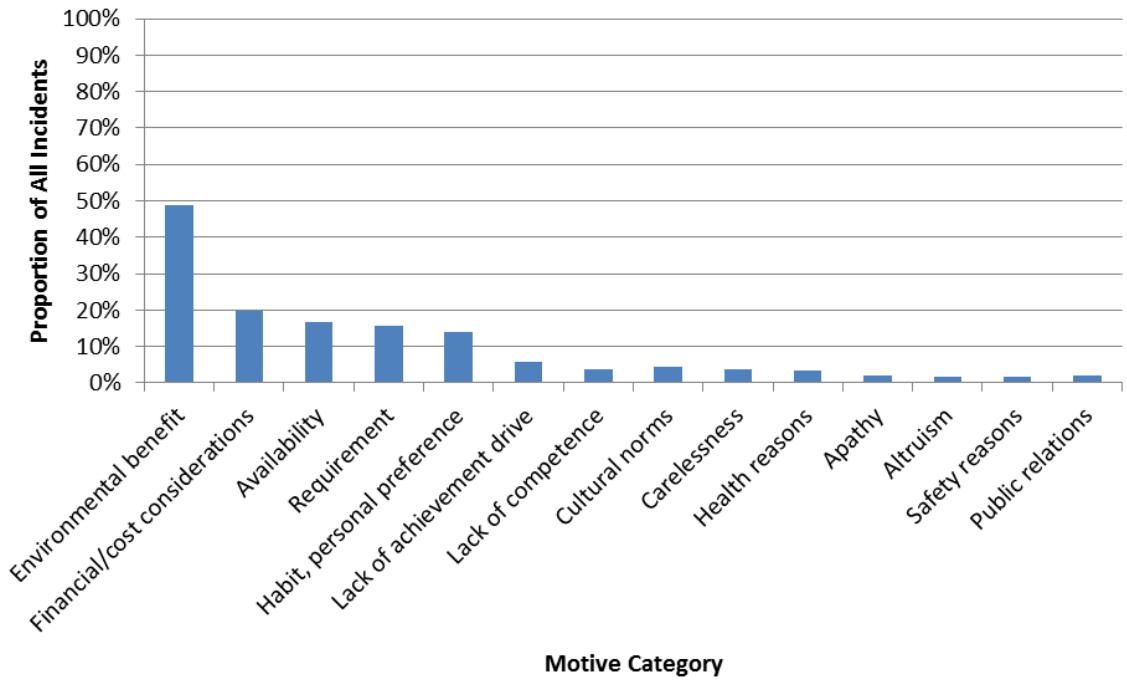

Figure 3. Study 1: Proportion of all incidents by motive category for Sample 1, Phase 2.

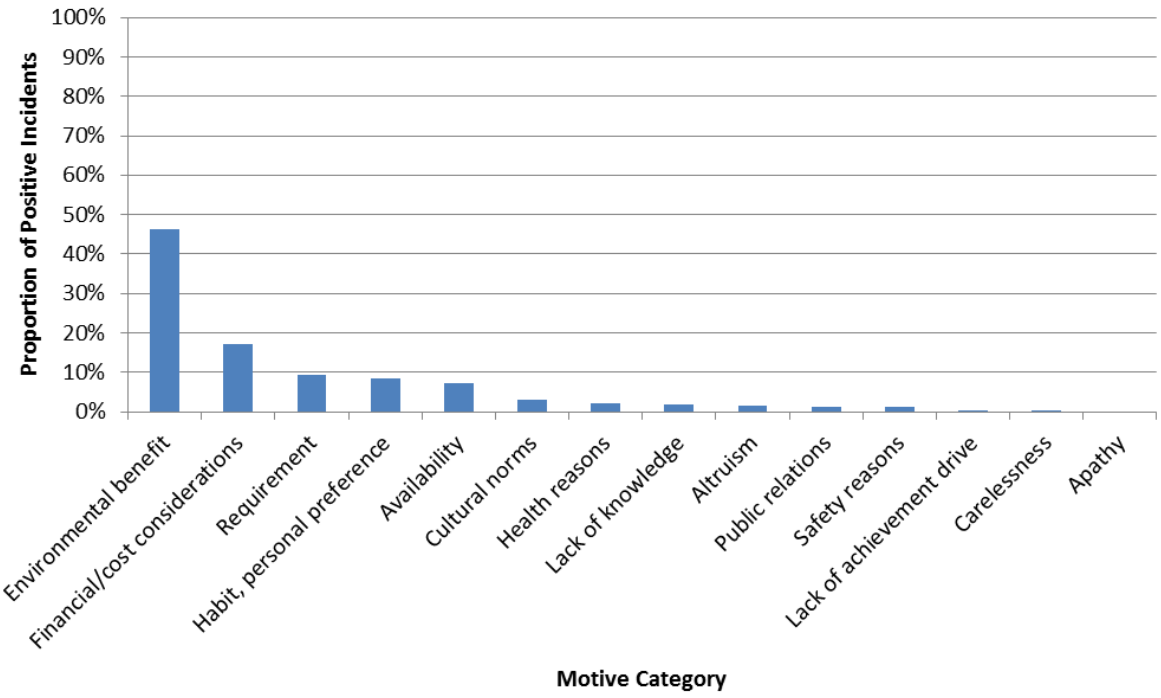

Figure 4. Study 1: Proportion of motives for all positive incidents by motive category for Sample 1, Phase 2.

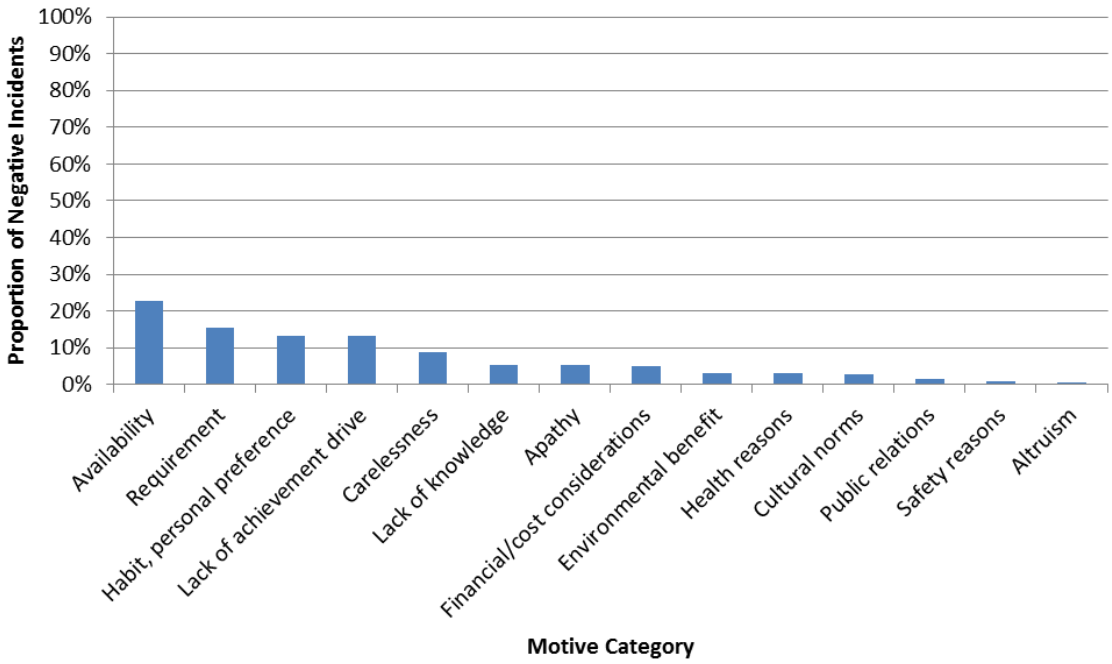

Figure 5. Study 1: Proportion of motives for all negative incidents by motive category for Sample 1, Phase 2.

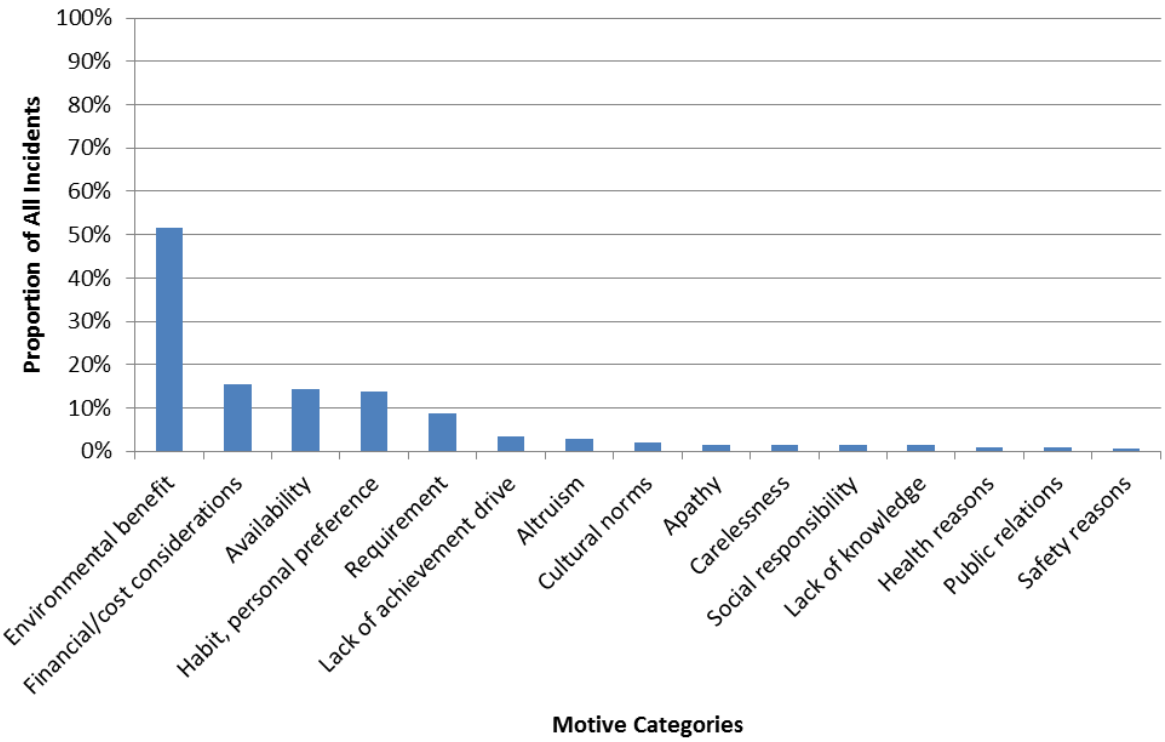

Figure 6. Study 1: Proportion of all incidents by motive category for Sample 2, Phase 3. The lack of self-efficacy motive is not in this chart given that it was added after a theoretical and conceptual review of the motive taxonomy.

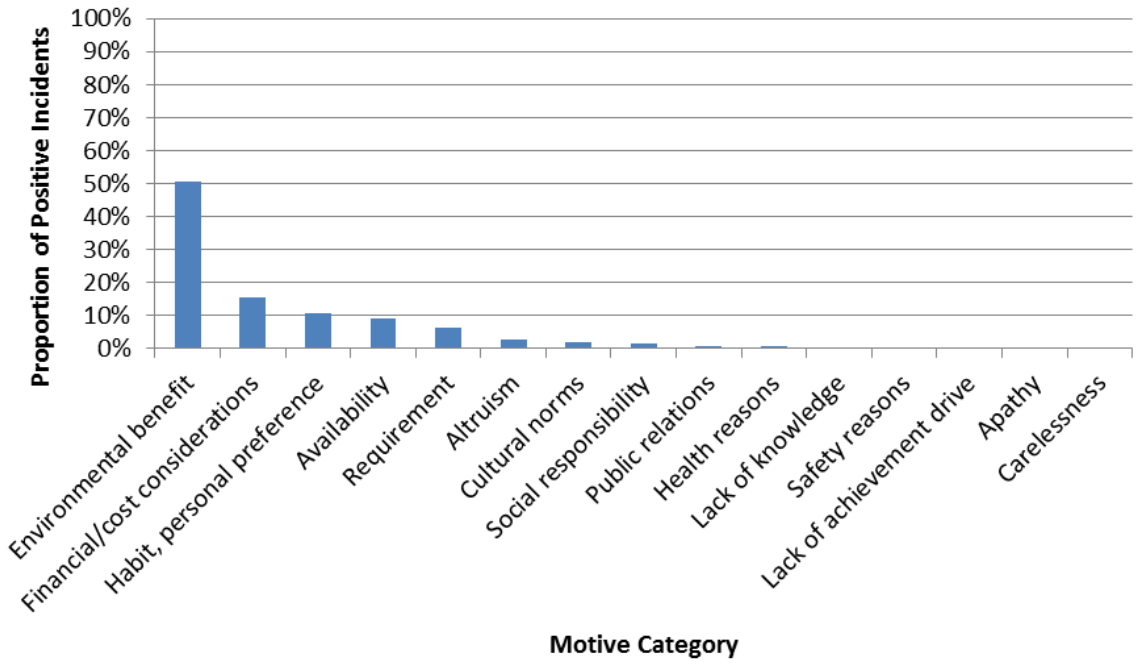

Figure 7. Study 1: Proportion of motives for positive incidents by motive category for Sample 2, Phase 3. The lack of self-efficacy motive is not in this chart given that it was added after a theoretical and conceptual review of the motive taxonomy.

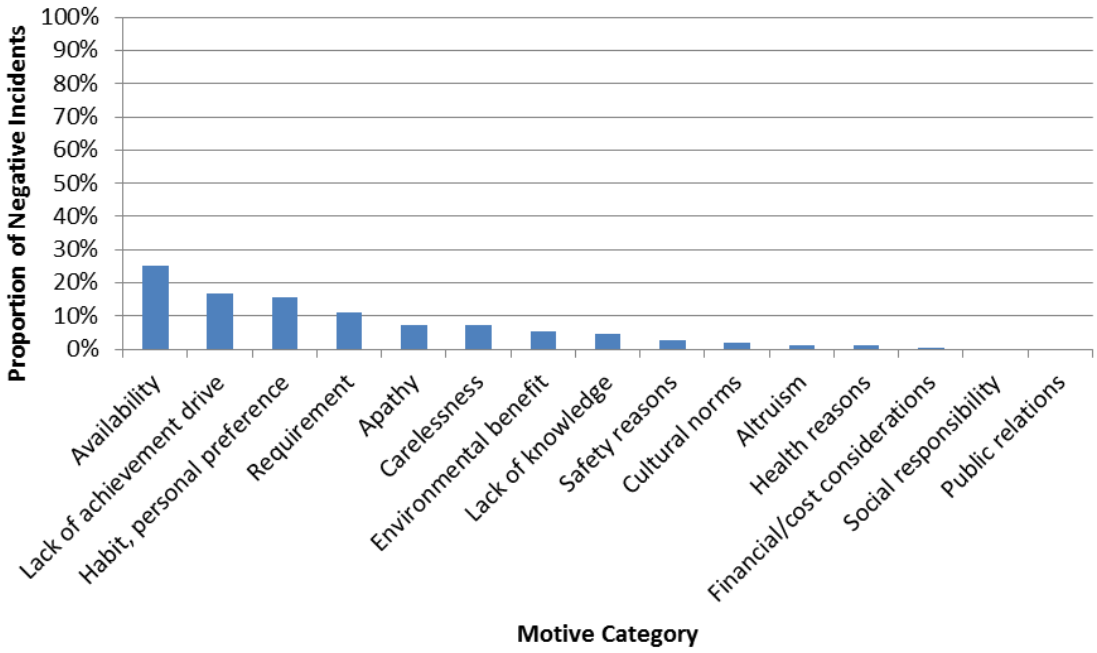

Figure 8. Study 1: Proportion of motives for negative incidents by motive category for Sample 2, Phase 3. The lack of self-efficacy motive is not in this chart given that it was added after a theoretical and conceptual review of the motive taxonomy.

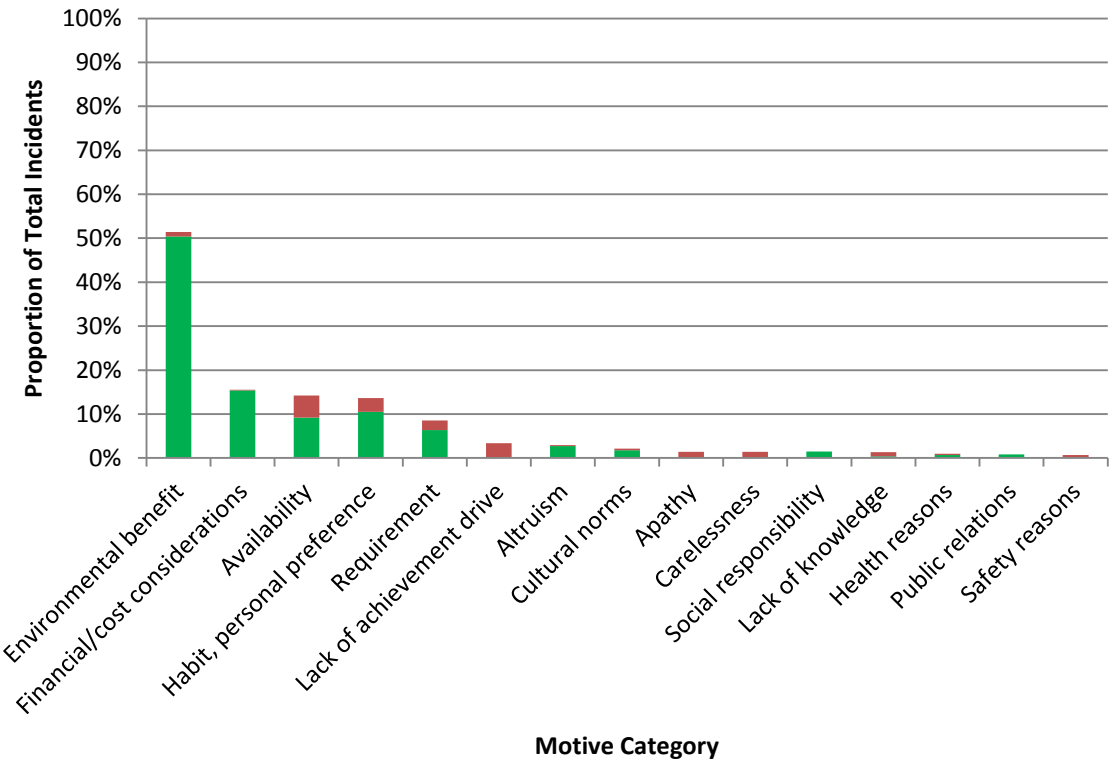

Figure 9. Study 1: Proportion of all incidents by motive category for Sample 2, Phase 3.

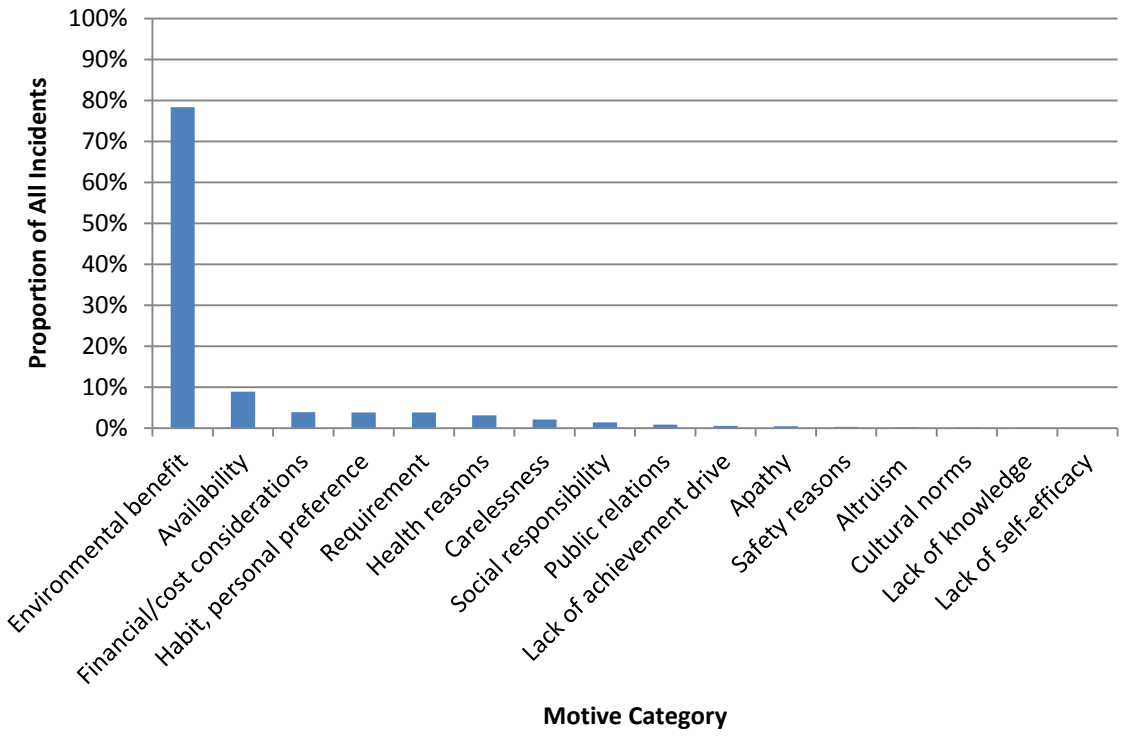

Figure 10. Study 1: Proportion of all incidents by motive category in European sample (Sample 3).

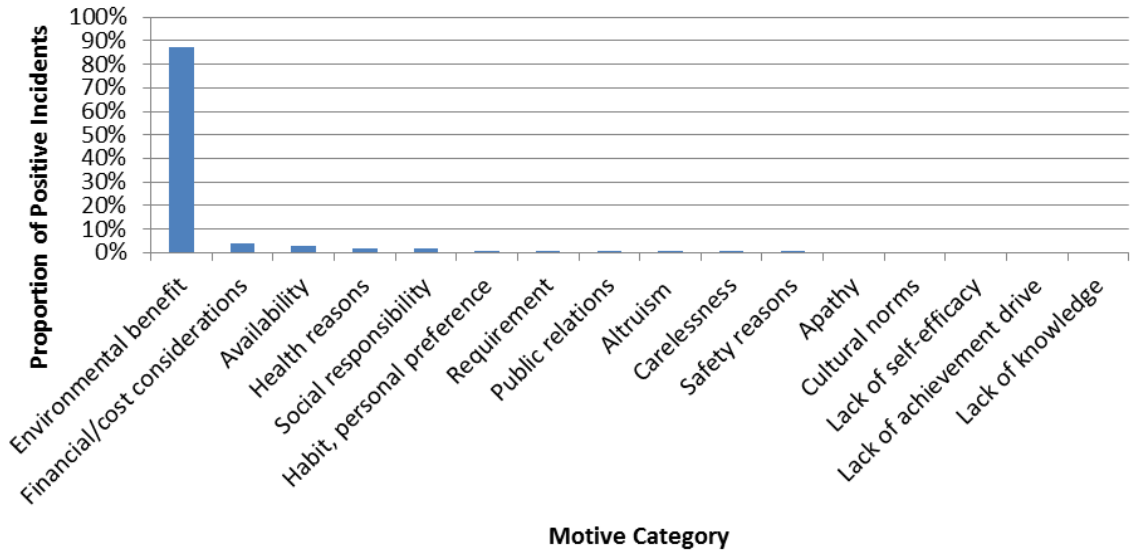

Figure 11. Study 1: Proportion of motives for all positive incidents by motive category for European sample (Sample 3).

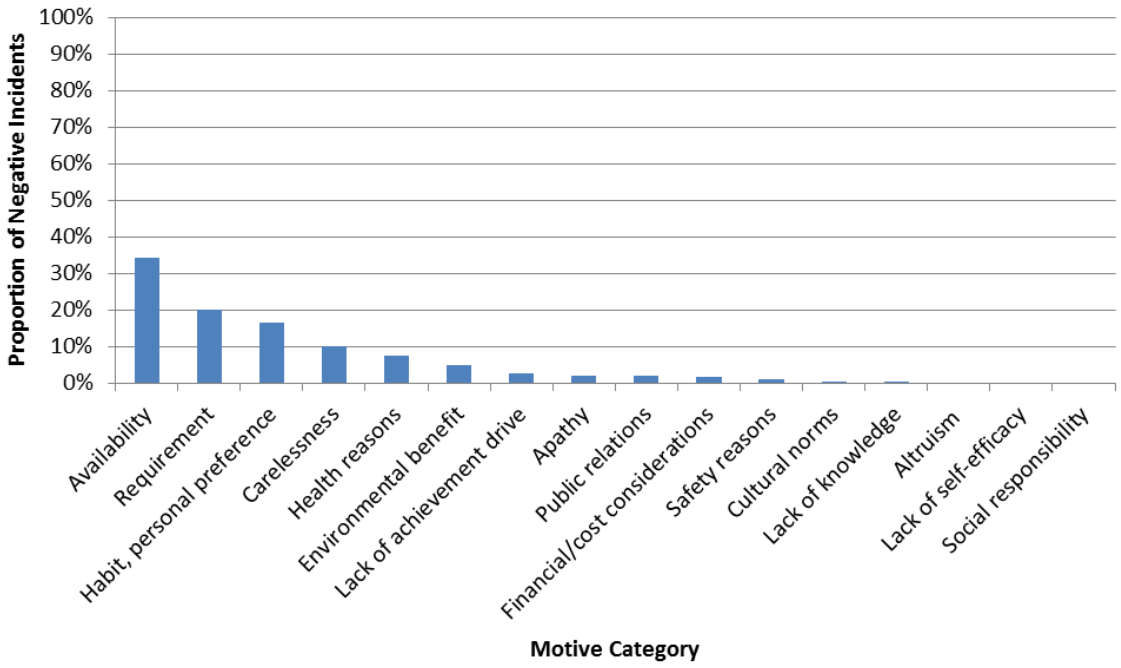

Figure 12. Study 1: Proportion of motives for all negative incidents by motive category for European sample (Sample 3).

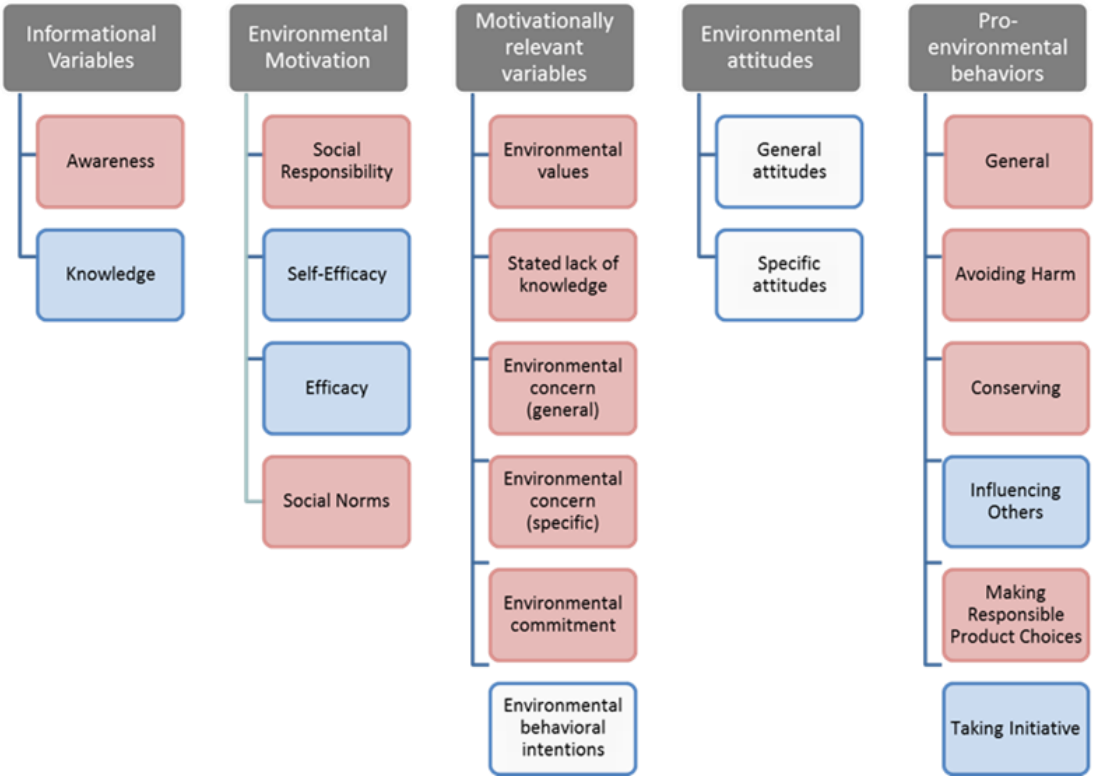

Figure 13. Study 2: Hypothesized gender differences in environmental sustainability variables. Pink indicates hypotheses predicting women will score higher, blue indicates men expected to score higher, and white indicates no difference expected.

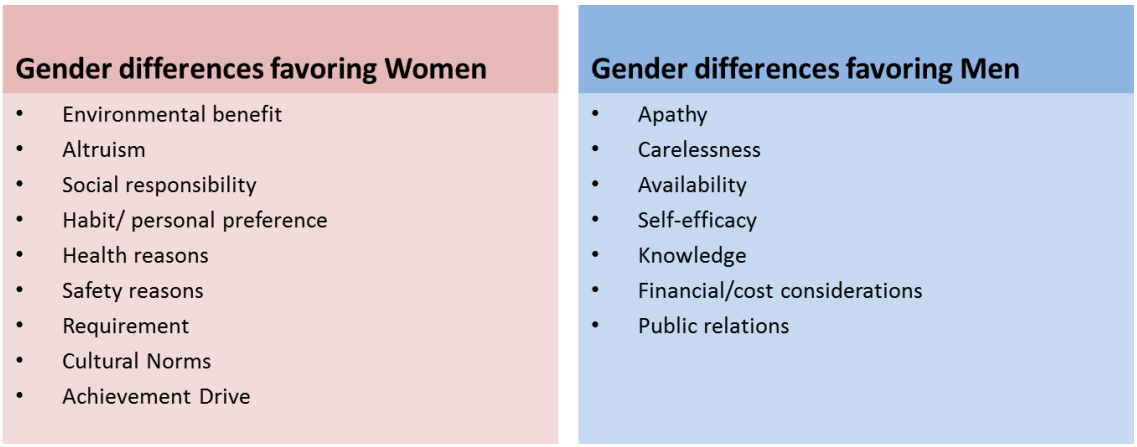

Figure 14. Study 3: Hypothesized gender differences in environmental motives.

		Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Prosocial	Environmental benefit			+	+	+
	Altruism				+	
	Social responsibility		+	+	+	+
	Apathy	+				—
	Carelessness	—	+			—
Enabling Capabilities	Availability	not a barrier				not a barrier
	Lack of achievement drive		—			—
	Lack of self-efficacy	+	—			—
	Lack of knowledge			—		
	Habit, personal pref.			—		+
Extrinsic	Health reasons	+				+
	Safety reasons	+				+
	Financial/cost considerations		—	—		+
Image	Public relations	+	+		+	+
	Cultural norms	+	+	—	+	+
	Requirement	+			+	+

Figure 15. Study 3: Hypothesized links between employee environmental sustainability motives and the Big Five dimensions of personality.

		Reactive Factor	Proactive Factor
Prosocial	Environmental benefit	Motive	Motive
	Altruism	Motive	Motive
	Social responsibility	Motive	Motive
	Apathy	Barrier	Barrier
	Carelessness	Barrier	
Enabling Capabilities	Availability	Less of a Barrier than Proactive	
	Lack of achievement drive		Barrier
	Lack of self-efficacy		Barrier
	Lack of knowledge	Less of a Barrier	Barrier
	Habit, personal preference	Motive	Motive
Extrinsic	Health reasons	Motive	
	Safety reasons	Motive	
	Financial/cost considerations	Motive	Barrier
Image	Public relations		Motive
	Cultural norms		Motive
	Requirement		Motive

Figure 16. Study 3: Hypothesized links between Environmental Sustainability and the Two Factors of Employee Green Behavior

	Positive Behavior	Negative Behavior
Engaged in Behavior	**Green Behavior Performance** "Sometimes", "Frequently", "Very Frequently" engage in EGB Example responses: Environmental benefits For financial considerations	**Ungreen Behavior Commission** "Sometimes", "Frequently", "Very Frequently" engage in ungreen behaviors Example responses: Environment was not important to me For financial considerations
Did *not* Engage in Behavior	**Green Behavior Omission** "Never" or "rarely" engage in EGB Example responses: Environment was not important to me For financial considerations	**Ungreen Behavior Avoidance** "Never" or "rarely" engage in ungreen behavior Example responses: Environmental benefits For financial considerations

Figure 17. Study 3: Behavioral dimensions of employee green behavior.

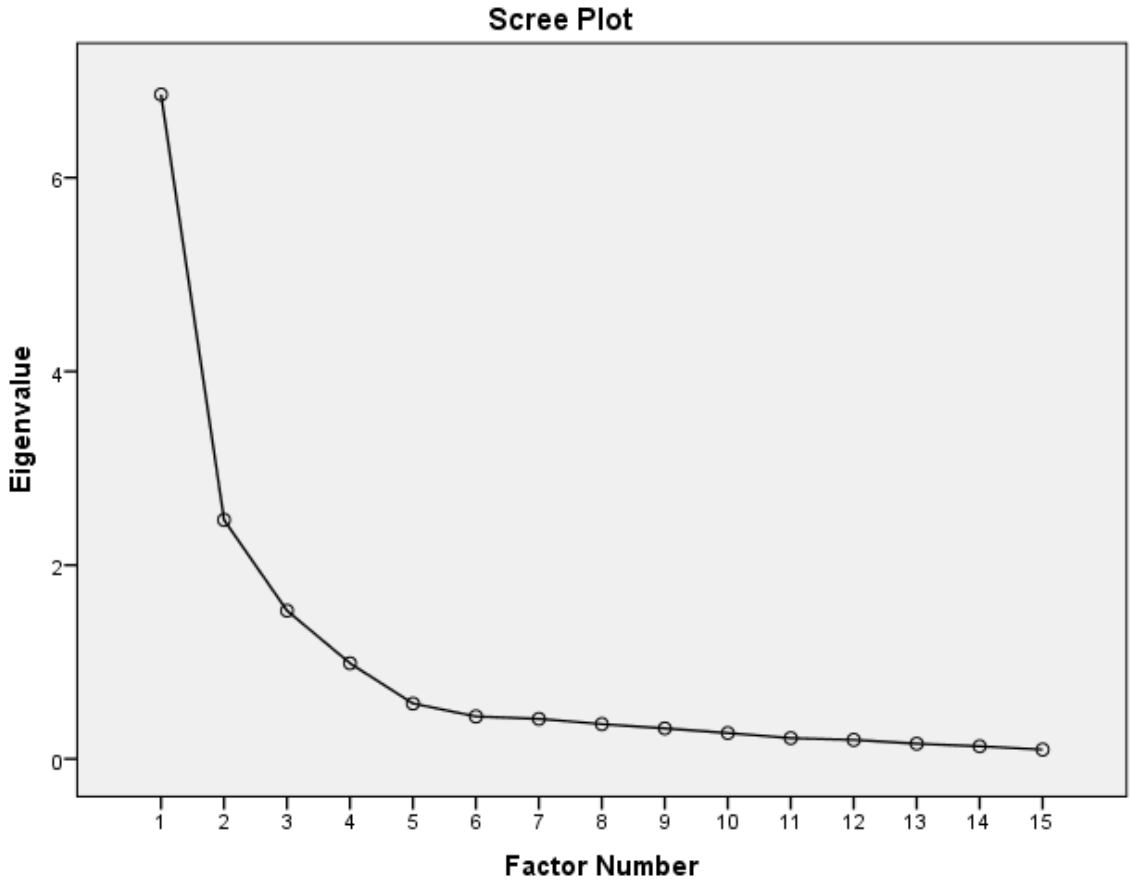

Figure 18. Study 3: Scree plot for motives of **green behavior performance**.

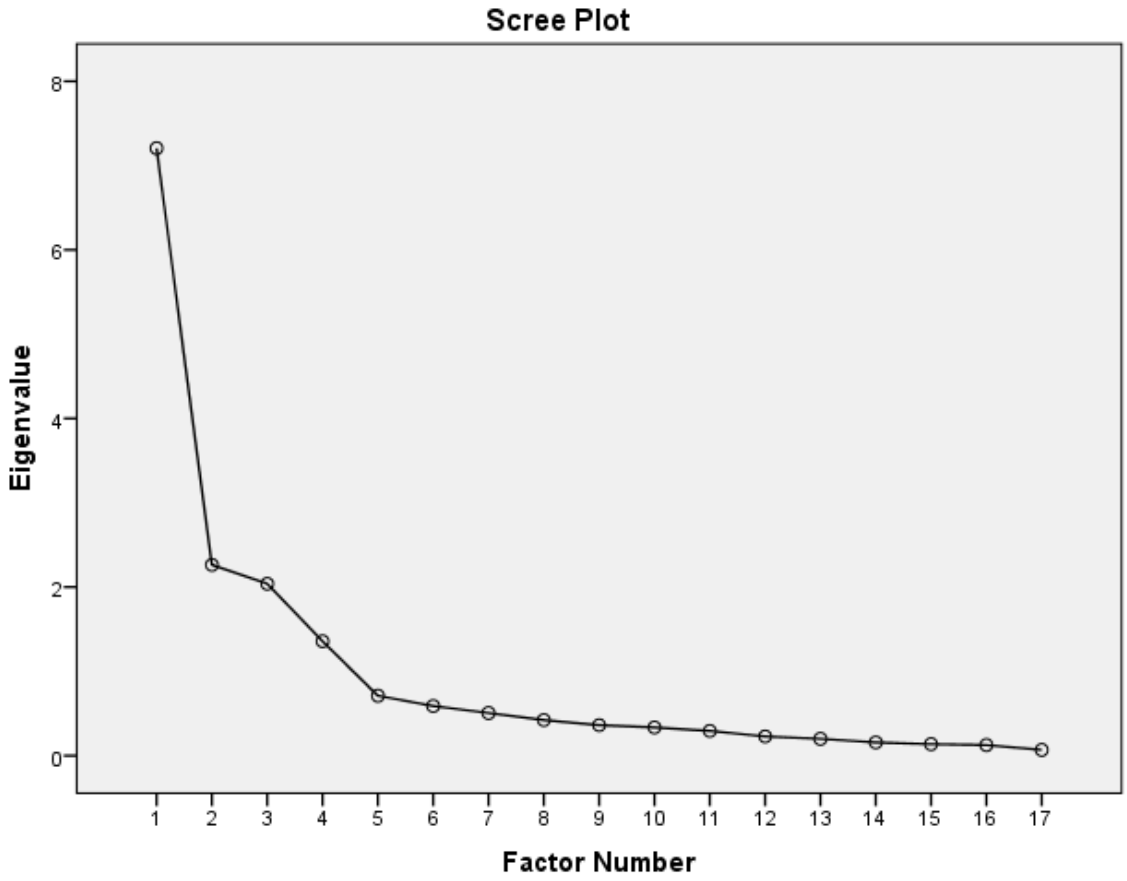

Figure 19. Study 3: Scree plot for motives of **green behavior omission**.

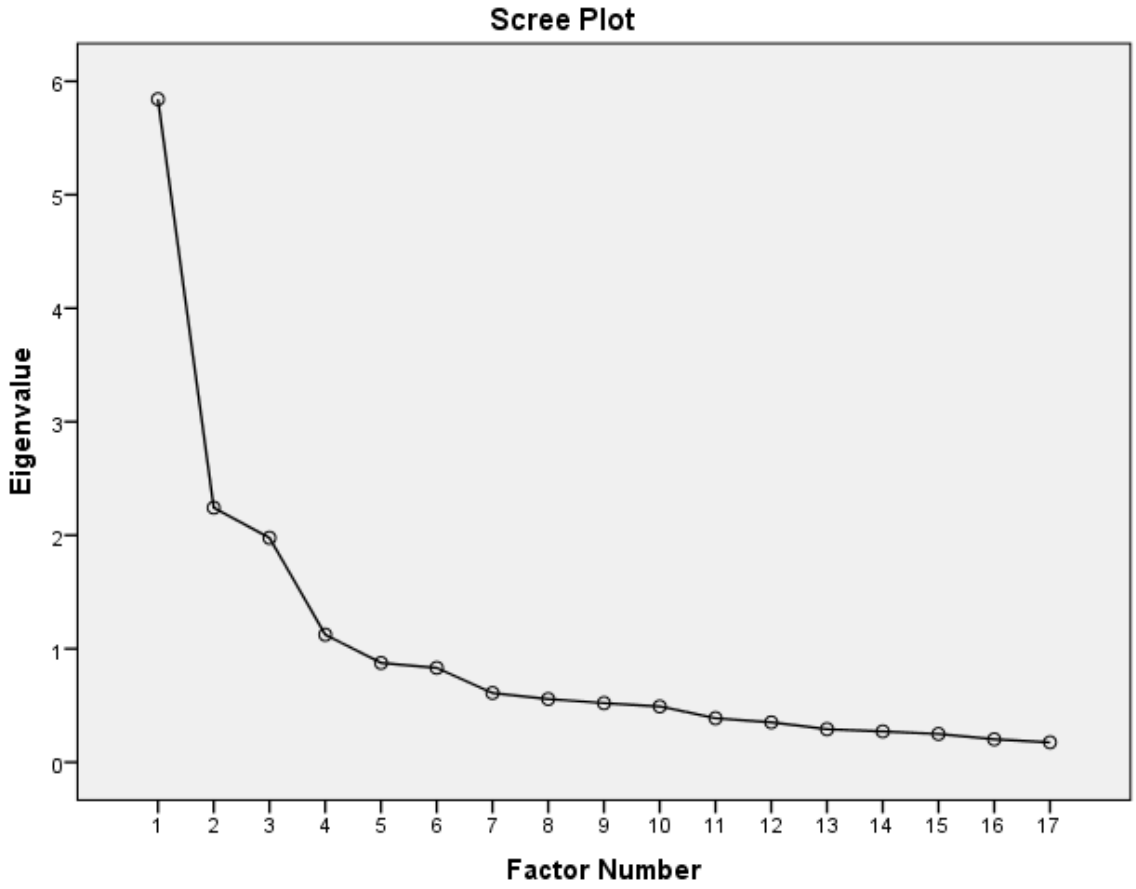

Figure 20. Study 3: Scree plot for motives of **ungreen behavior commission**.

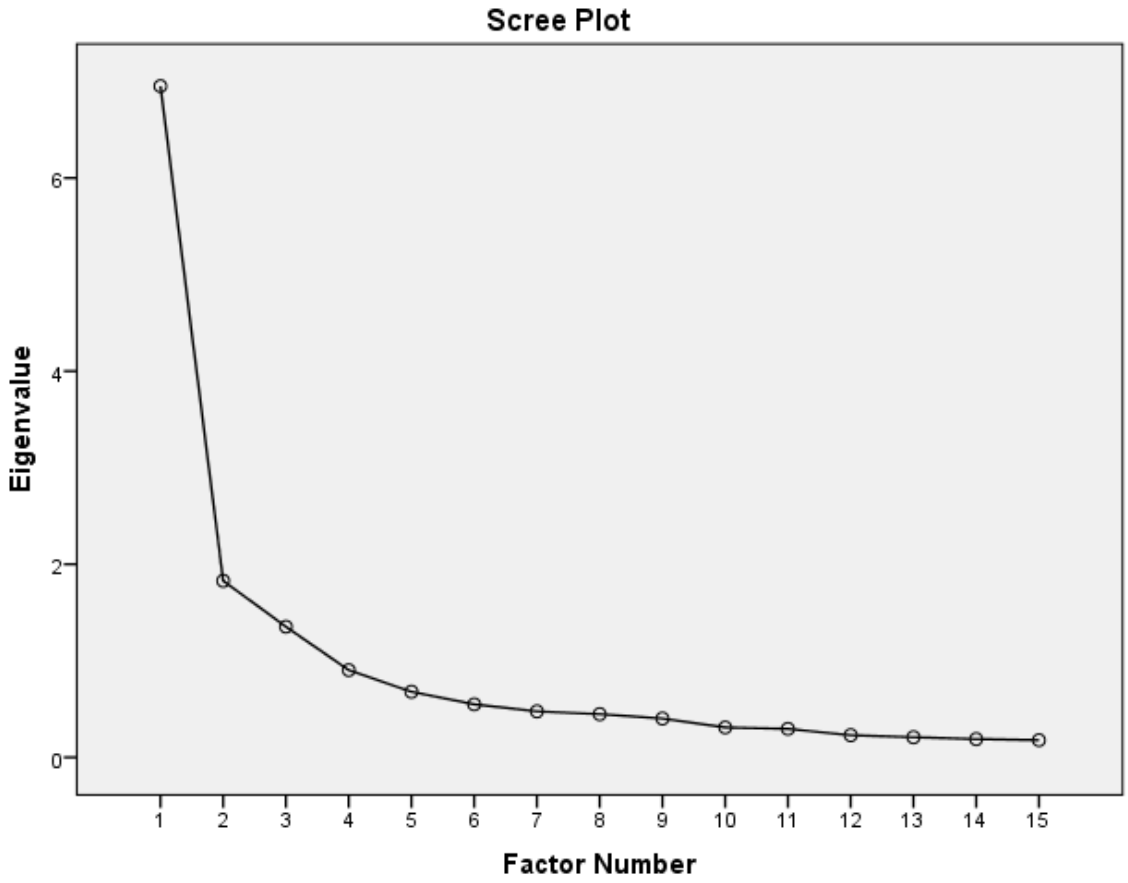

Figure 21. Study 3: Scree plot for motives of **ungreen behavior avoidance**

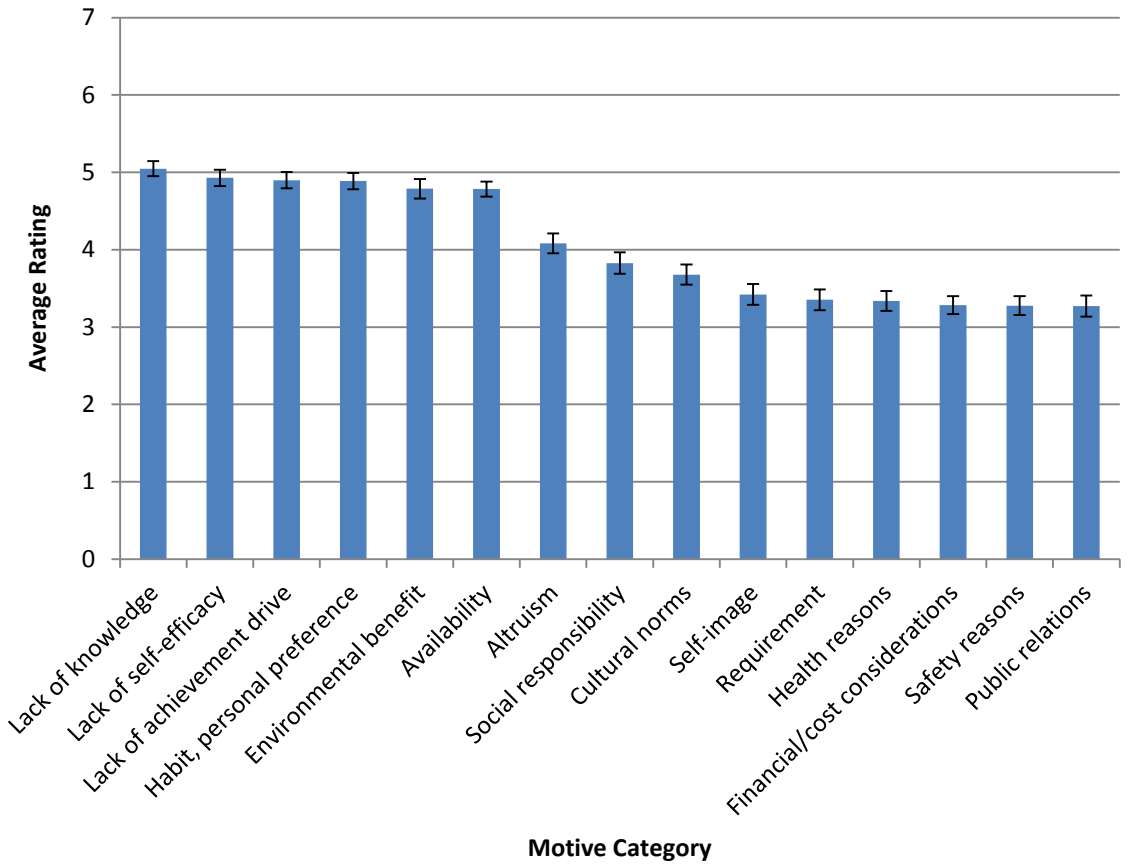

Figure 22. Study 3: Motives for **green behavior performance**. *N* = 341. Average rating on each motive category for green behavior performance. Error bars represent the 90% confidence interval of the mean.

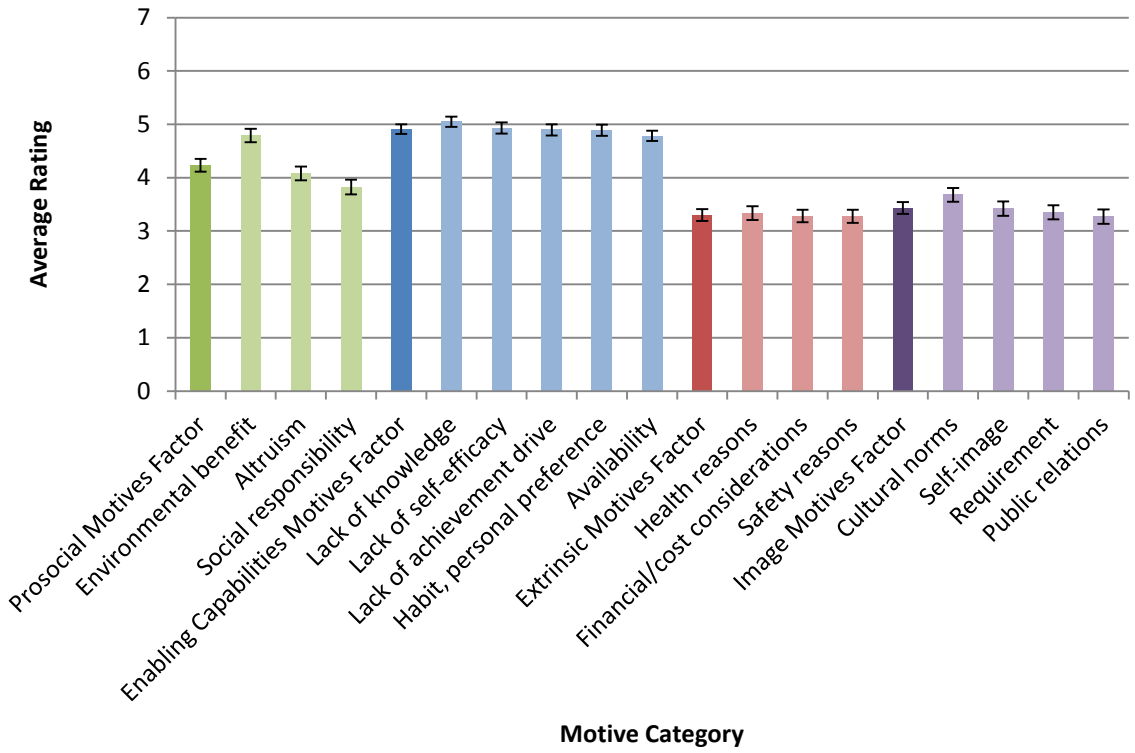

Figure 23. Study 3: Motives and factors for **green behavior performance** by motive factor. *N* = 341. Average rating on each motive factor and category for green behavior performance. Error bars represent the 90% confidence interval of the mean.

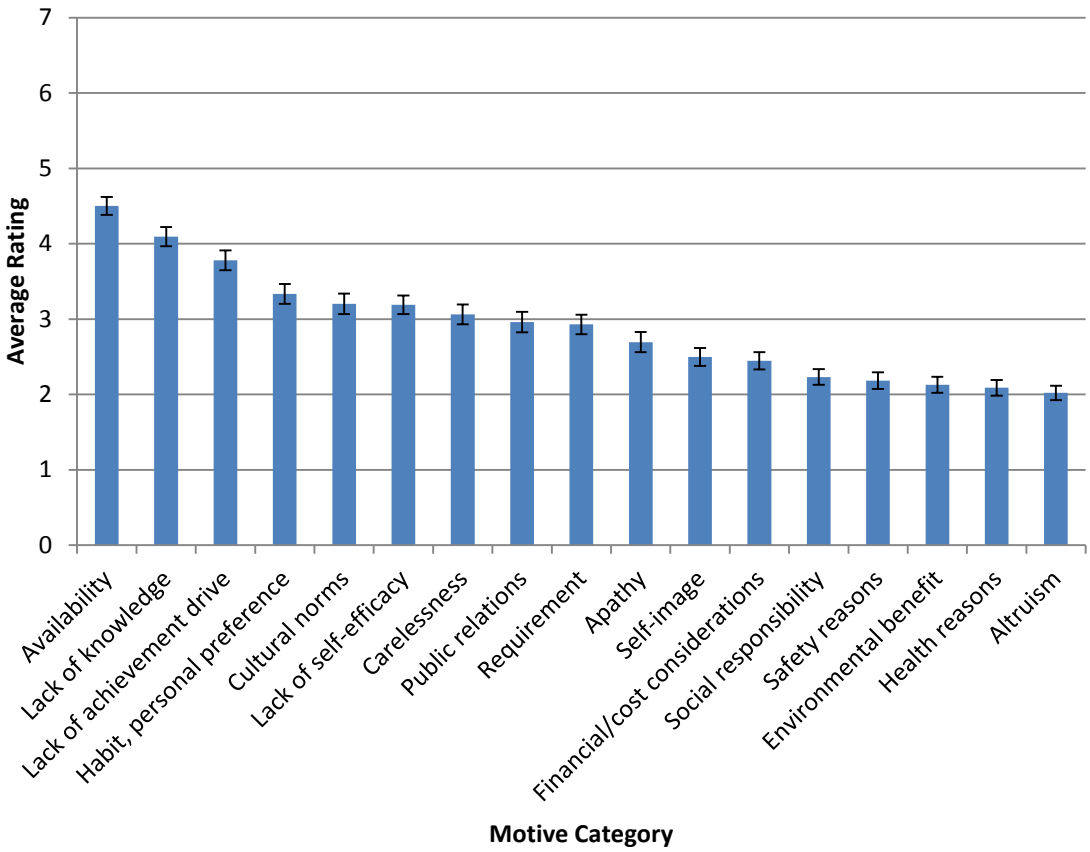

Figure 24. Study 3: Motives for **green behavior omission**. *N* = 324. Average rating on each motive category for green behavior omission. Error bars represent the 90% confidence interval of the mean.

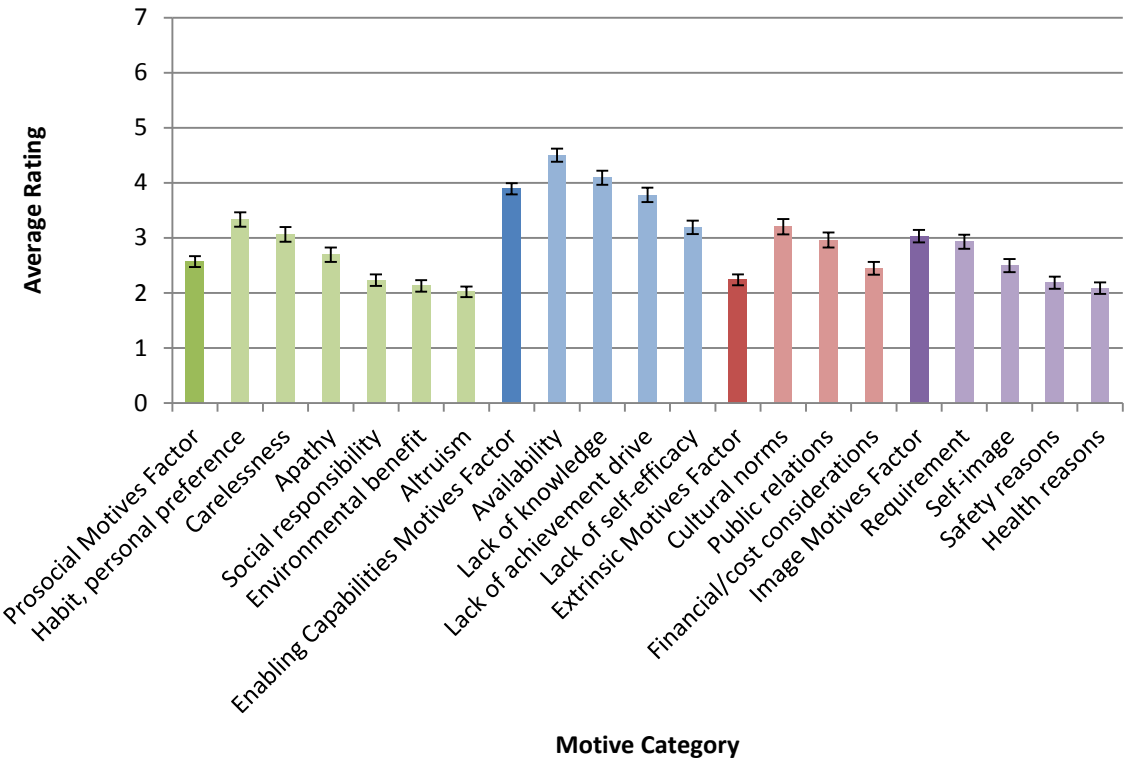

Figure 25. Study 3: Motives for **green behavior omission** by motive factor. *N* = 324. Average rating on each motive factor and category for green behavior omission. Error bars represent the 90% confidence interval of the mean.

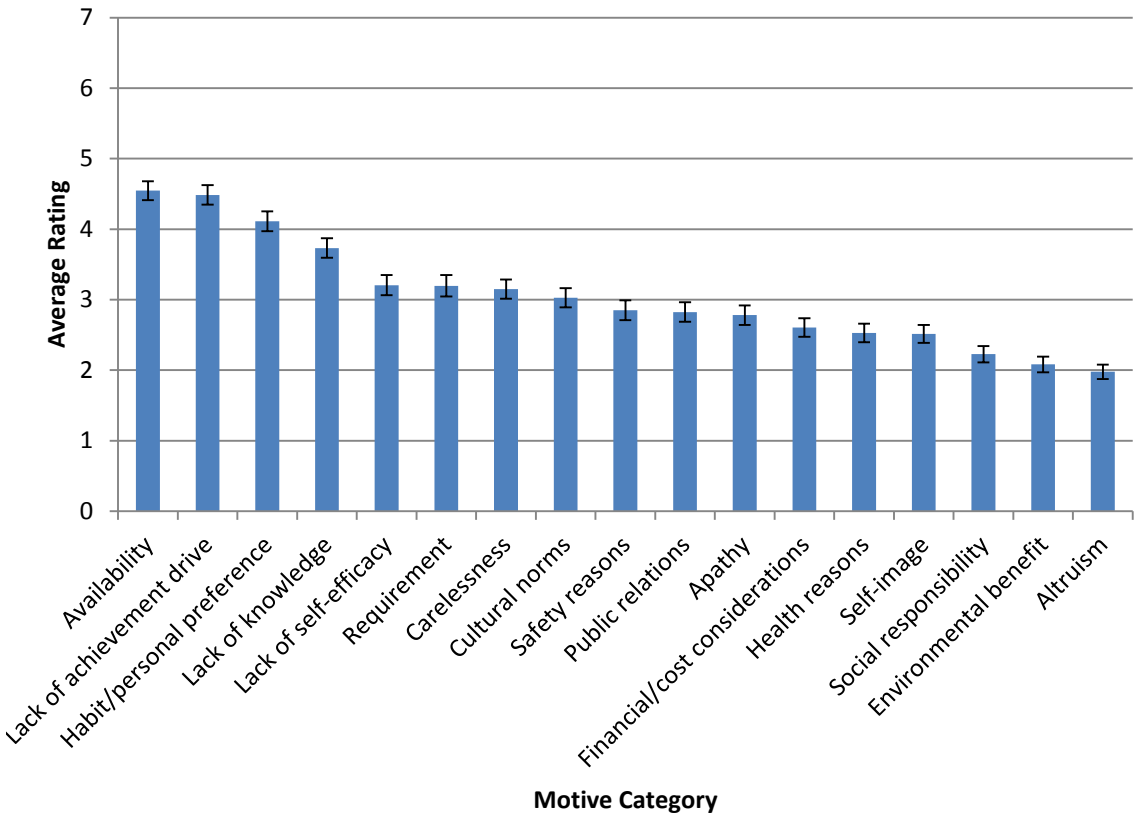

Figure 26. Study 3: Motives for **ungreen behavior commission**. *N* = 320. Average rating on each motive category for ungreen behavior commission. Error bars represent the 90% confidence interval of the mean.

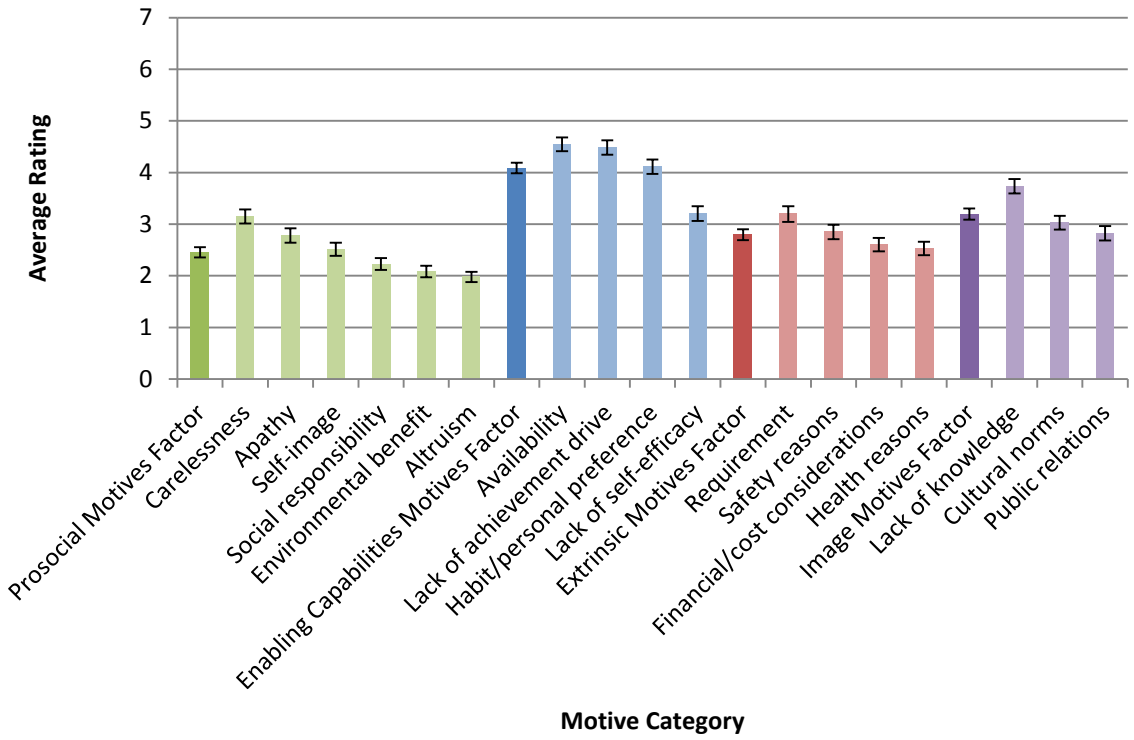

Figure 27. Study 3: Motives for **ungreen behavior commission** by motive factor. *N* = 320. Average rating on each motive factor and category for ungreen behavior commission. Error bars represent the 90% confidence interval of the mean.

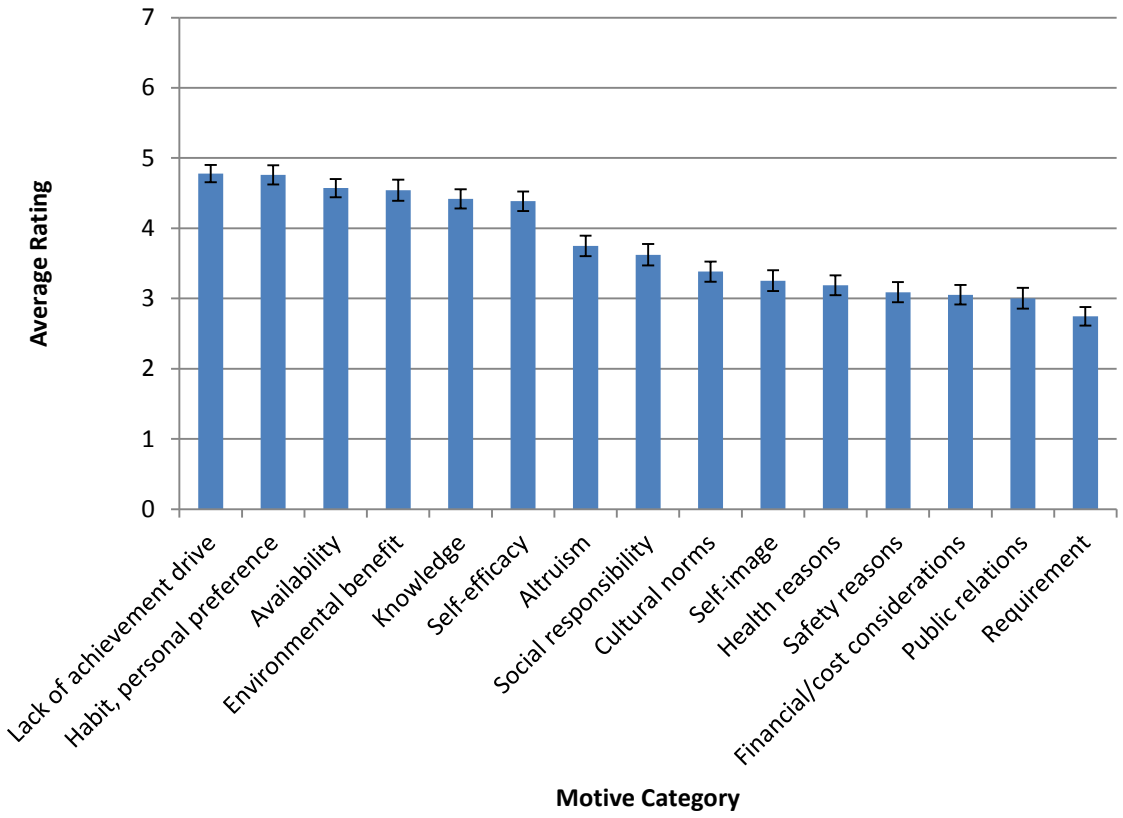

Figure 28. Study 3: Motives for **ungreen behavior avoidance.** *N* = 335. Average rating on each motive category for ungreen behavior avoidance. Error bars represent the 90% confidence interval of the mean.

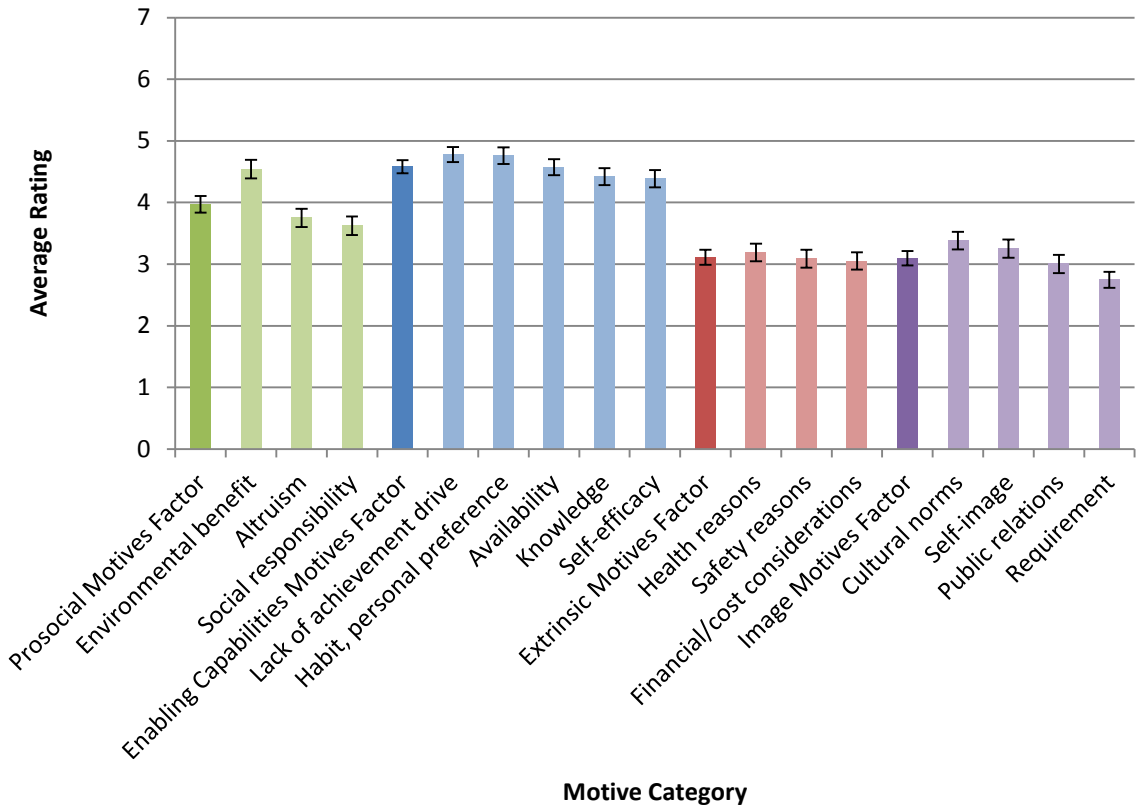

Figure 29. Study 3: Motives for **ungreen behavior avoidance** by motive factor. *N* = 335. Average rating on each motive factor category for ungreen behavior avoidance. Error bars represent the 90% confidence interval of the mean.

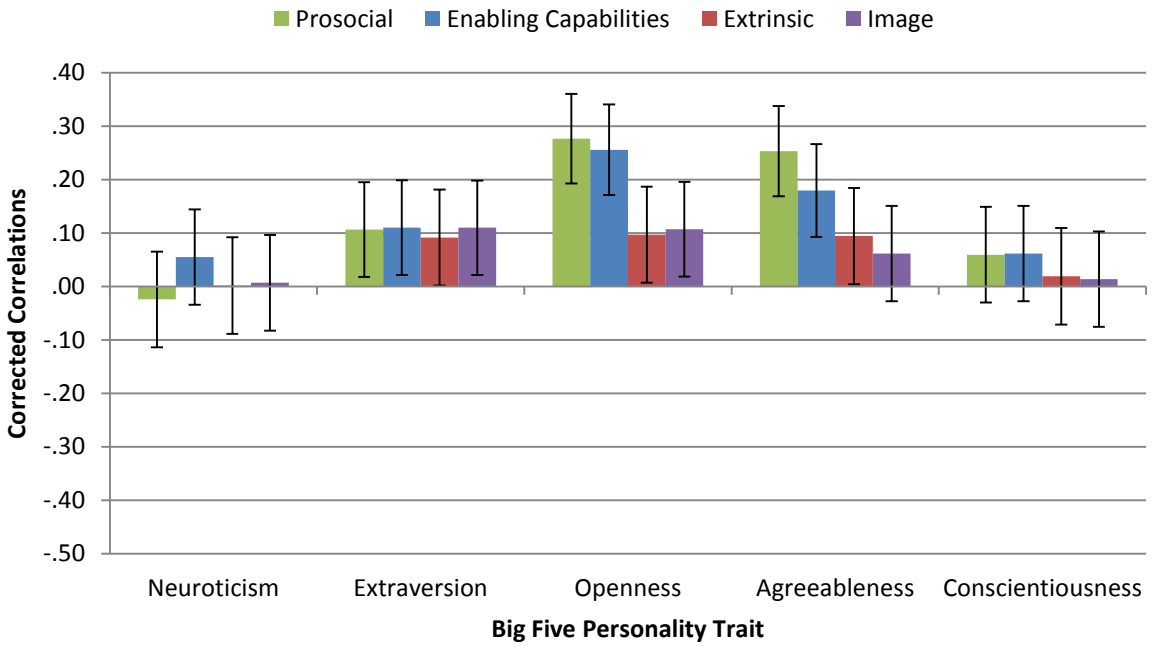

Figure 30. Study 3: Correlations between Big Five personality traits and environmental sustainability motives factors for **green behavior performance.** Error bars represent one standard error above and below the corrected correlation coefficient.

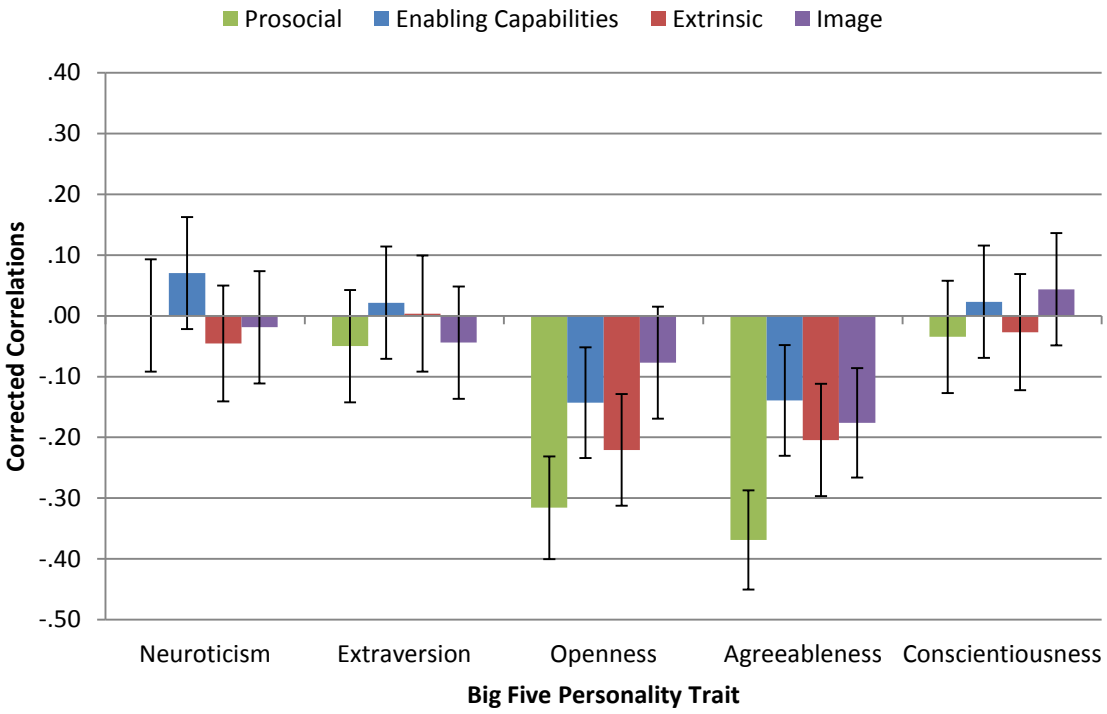

Figure 31. Study 3: Correlations between Big Five personality traits and environmental sustainability motives factors for **green behavior omission.** Error bars represent one standard error above and below the corrected correlation coefficient.

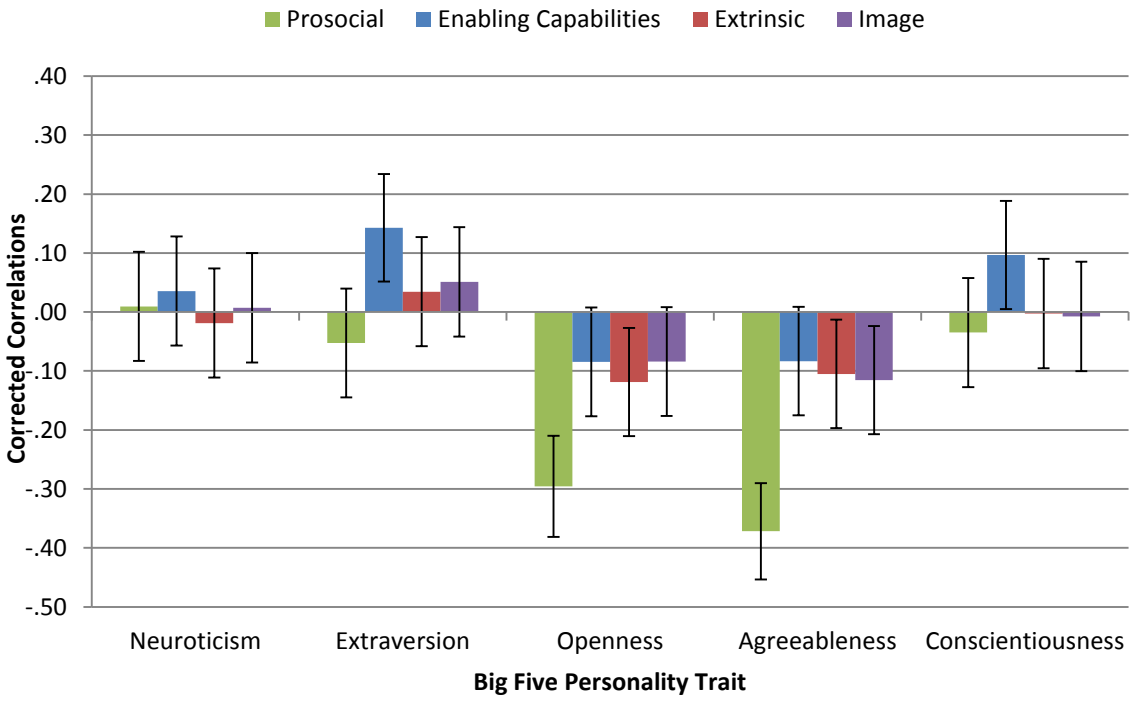

Figure 32. Study 3: Correlations between Big Five personality traits and environmental sustainability motives factors for **ungreen behavior commission**. Error bars represent one standard error above and below the corrected correlation coefficient.

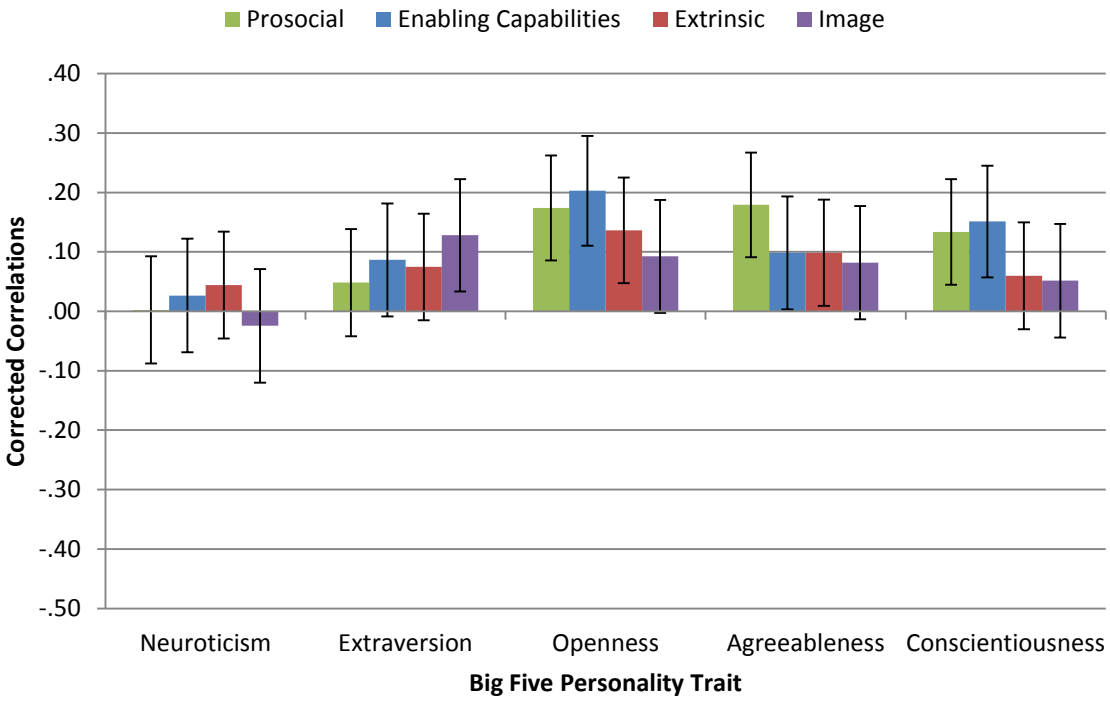

Figure 33. Study 3: Correlations between Big Five personality traits and environmental sustainability motives factors for ungreen behavior avoidance. Error bars represent one standard error above and below the corrected correlation coefficient.